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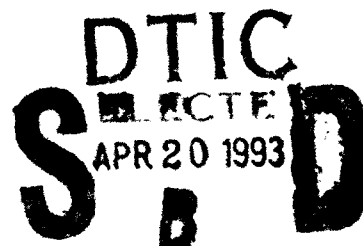
**U.S. Army Corps
of Engineers
New Orleans District**

**CULTURAL RESOURCE SURVEY OF
CARROLLTON BEND REVETMENT,
MISSISSIPPI RIVER M-105.7 TO 101.7-L,
JEFFERSON AND ORLEANS PARISHES, LOUISIANA**

February 1993

FINAL REPORT

R. Christopher Goodwin & Associates, Inc.
5824 Plauche Street
New Orleans, LA 70123

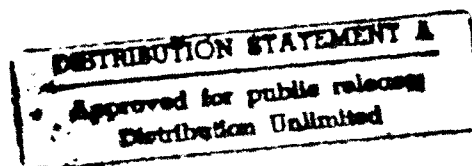


PREPARED FOR:

U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

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93 4 19 152



93-08248 97 pg



REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1a. REPORT SECURITY CLASSIFICATION			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			Unclassified. Distribution is unlimited.		
4. PERFORMING ORGANIZATION REPORT NUMBER(S)			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION R. Christopher Goodwin & Associates, Inc.		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION U.S. Army Corps of Engineers New Orleans District		
6c. ADDRESS (City, State, and ZIP Code) 5824 Plauche Street New Orleans, LA 70123			7b. ADDRESS (City, State, and ZIP Code) P.O. Box 60267 New Orleans, LA 70160-0267		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. COE New Orleans District		8b. OFFICE SYMBOL (If applicable) CELMN-PD-RN	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DACW29-90-D-0018 Delivery Order No. 0011		
8c. ADDRESS (City, State, and ZIP Code) P.O. Box 60267 New Orleans, LA 70160-0267		10. SOURCE OF FUNDING NUMBERS			
		PROGRAM ELEMENT NO N/A	PROJECT NO CIVIL WORKS FUNDING	TASK NO.	WORK UNIT ACCESSION NO
11. TITLE (Include Security Classification) CULTURAL RESOURCE SURVEY OF CARROLLTON BEND REVETMENT, MISSISSIPPI RIVER M-105.7 TO 101.7-L, JEFFERSON AND ORLEANS PARISHES, LOUISIANA					
12. PERSONAL AUTHOR(S) Stephen Hinks, Paul V. Heinrich, Ralph Draughon, Jr., Susan Barrett Smith, Jennifer Cohen, and William P. Athens					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 1992 TO 1993		14. DATE OF REPORT (Year, Month, Day) 1993, February 26	
				15. PAGE COUNT 94	
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>This report presents results of Phase I/II archeological survey of the Carrollton Bend Revetment, Jefferson and Orleans parishes, Louisiana. The project was undertaken by R. Christopher Goodwin & Associates, Inc., for the U.S. Army Corps of Engineers, New Orleans District, prior to planned extension of the Carrollton Bend Revetment. A total of 70 ac were examined for cultural resources. Fieldwork consisted of pedestrian survey augmented by systematic and judgmental excavation of 86 auger tests and one, 1 x 2 m unit within the survey area. One cultural resource location, Location 1, was identified during survey. Location 1 contained an alignment of brick piers; the remains were not in situ. Additional testing demonstrated that these piers were deposited after World War II, and probably served to limit riverine cutting. The deposits lacked archeological integrity and research potential; in addition, they did not warrant designation as an archeological site. The location does not possess the qualities of significance as defined by National Register of Historic Places criteria (36 CFR 60.4 [a-d]). No additional archeological testing within the Carrollton Bend Revetment survey area is recommended.</p>					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Howard Bush			22b. TELEPHONE (Include Area Code) 504-862-2550		22c. OFFICE SYMBOL CELMN-PD-RN



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT CORPS OF ENGINEERS

P O BOX 60267

NEW ORLEANS LOUISIANA 70160-0267

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Planning Division
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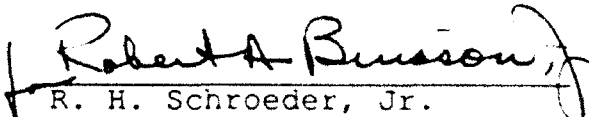
To The Reader:

This cultural resources effort was designed, funded, and guided by the U.S. Army Corps of Engineers, New Orleans District as part of our cultural resources management program. The work documented in this report was performed to provide information needed to assess cultural resource impacts which could result from construction of the upstream extension of the Carrollton Bend Revetment Item which is part of the Mississippi River and Tributaries Project.

This report has been reviewed and accepted by the New Orleans District. We commend the contractor's efforts and careful scholarship.



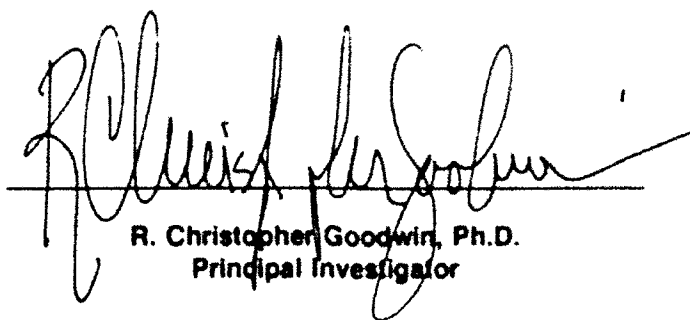
Howard R. Bush
Authorized Representative
of the Contracting Officer



R. H. Schroeder, Jr.
Chief, Planning Division

**CULTURAL RESOURCE SURVEY OF
CARROLLTON BEND REVETMENT,
MISSISSIPPI RIVER M-105.7 TO 101.7-L,
JEFFERSON AND ORLEANS PARISHES, LOUISIANA**

FINAL REPORT



**R. Christopher Goodwin, Ph.D.
Principal Investigator**

By

**Stephen Hinks, Paul V. Heinrich, Ralph Draughon, Jr.,
Susan Barrett Smith, Jennifer Cohen, and William P. Athens**

**R. Christopher Goodwin & Associates, Inc.
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New Orleans, LA 70123**

February 1993

For

**U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267**

Report No. COELMN/PD-93/03

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ACKNOWLEDGMENTS

We would like to express our gratitude to those individuals and organizations who gave their time and effort to assist us in the research and production of this report. Ms. Carroll Kleinhans, COTR, prepared the Scope of Services, and provided valuable advice throughout the project. Mr. Howard Bush served as COR. We also thank the staffs of the Louisiana Division of Archaeology; and, the Louisiana Collection, Howard-Tilton Memorial Library, Tulane University, for their assistance.

At R. Christopher Goodwin & Associates, Inc., William P. Athens served as Project Manager. Stephen Hinks directed field investigations, while archeological assistants included Charlotte Donald, James A. Green, Ann Ballard, Ann Fleetwood, Christine Herman, Jeremy Horowitz, John Brothers, III, David Lynes, and Christopher Parker. Paul Heinrich conducted the geomorphological research. Ralph Draughon, Jr., with the assistance of Susan Barrett Smith, and Danton Kostandarthes, explored the historical development of the project area. David Courington and Shirley Rambeau prepared the graphic materials included in this report. The report was produced by Christine Herman.

CHAPTER I

INTRODUCTION

This report presents the results of a Phase I/II cultural resources investigation of the Carrollton Bend Revetment, Mississippi River M-105.7 to 101.7-L, Jefferson and Orleans parishes, Louisiana. The project area is situated on the batture, extending from Jefferson Heights, in Jefferson Parish, downriver through Carrollton to the Audubon Zoological Park, in Orleans Parish (Figure 1). Archeological survey was conducted in June 1992 by R. Christopher Goodwin & Associates, Inc., for the U.S. Army Corps of Engineers, New Orleans District, pursuant to Delivery Order 11, Contract DACW29-90-D-0018. This project was undertaken in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

The project reach encompasses three adjacent segments (Figure 1). The downriver segment lies between River Miles 104.7 and 101.7-L; it contains the previously constructed Carrollton Bend Revetment. Only archival research was undertaken to assess the potential for encountering significant cultural resources in that area; no archeological testing was conducted within this segment. The central segment lies between River Miles 105.2 and 104.7-L; it corresponds to the 1992 extension of the Carrollton Bend Revetment. This central segment was examined for cultural resources through pedestrian survey and systematic auger testing. The upriver segment is located between River Miles 105.7 and 105.2-L; it encompasses a planned Carrollton Bend Revetment construction easement. That area, which exhibits considerable modern disturbance, was examined through pedestrian survey and the excavation of numerous judgmentally placed auger tests.

Field investigations were designed to identify and evaluate all archeological sites and pre-1945 historic standing structures in the project area. Archival research focused on reconstructing the historic development of the waterfront, identifying potential archeological resources within the area, and making a preliminary evaluation of the impact of natural and cultural processes on the project reach.

Fieldwork consisted of intensive pedestrian survey, augmented by systematic and judgmental auger testing within selected portions of the project reach (Figure 1). Additional testing, including the excavation of a single 1 x 2 m unit, was performed at one identified cultural resources location. This testing demonstrated that the cultural resources location was comprised solely of modern bankline protection debris, and that the locus did not constitute an archeological resource. During survey, approximately 70 ac were examined; no significant archeological deposits were identified.

Organization of the Report

The natural setting of the project area is described in Chapter II. This discussion incorporates data collected during the field investigations to interpret the impact of natural and cultural processes on the project area. A prehistoric overview of the region is presented in Chapter III. The historic development of the project reach is incorporated into Chapter IV; it emphasizes the development of the waterfront, and identifies potential historic archeological sites within the current project area. A review of the previous archeological investigations conducted in the vicinity of the project area is contained in Chapter V. Methods utilized during survey and in conducting the laboratory analyses of recovered materials are described in Chapter VI. The results of the field and laboratory investigations are presented in Chapter VII. Finally, a summary and management recommendations are presented in Chapter VIII.

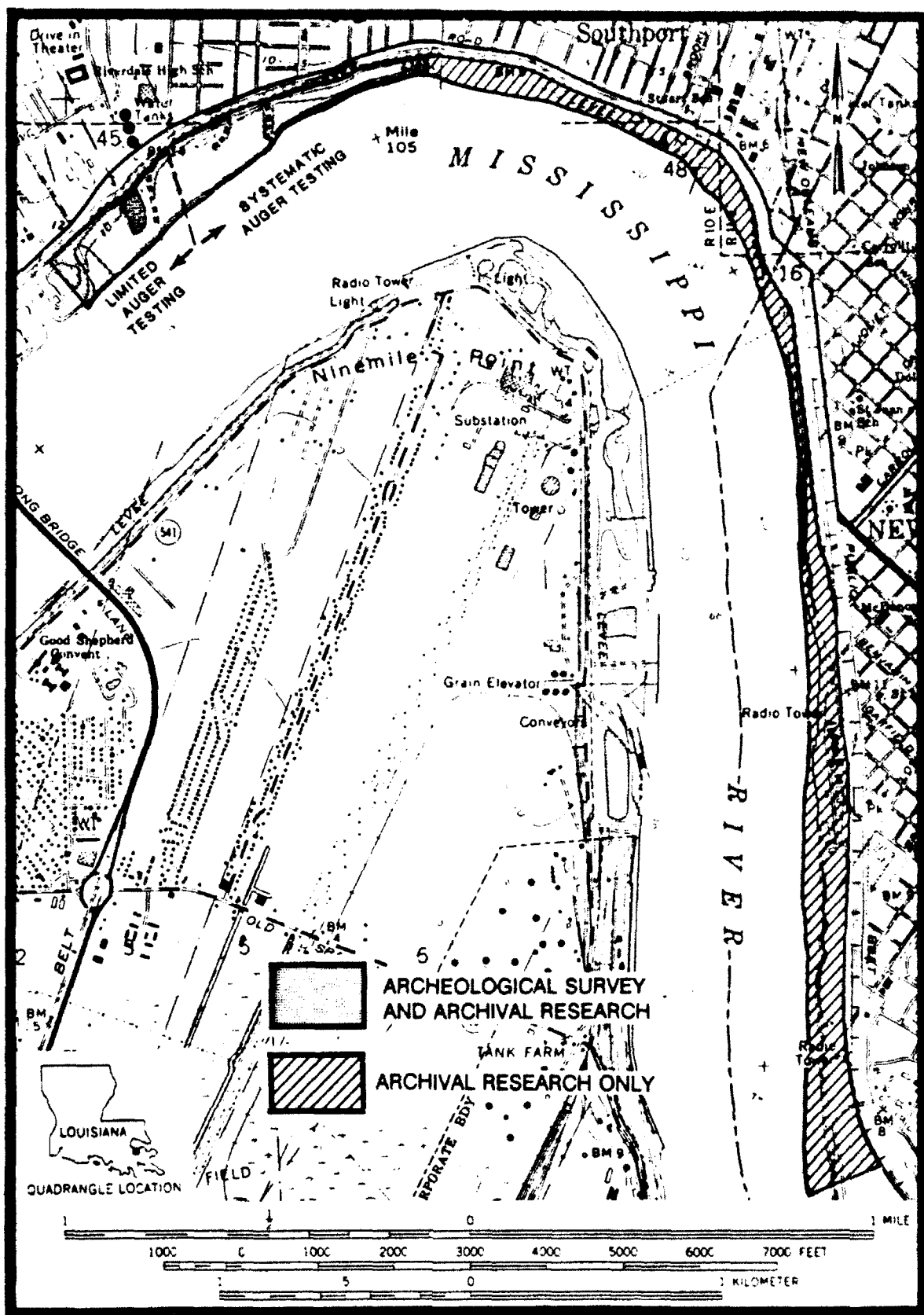


Figure 1. Excerpt from the 1965 (photorevised 1972 and 1979) USGS 7.5' series topographic quadrangle, New Orleans West, Louisiana, showing the Carrollton Bend project area.

CHAPTER II

NATURAL SETTING

Introduction

This chapter portrays the natural setting of the Carrollton Bend Revetment project area. It includes a description of the natural setting, an examination of the natural and anthropomorphic processes that shaped the Carrollton Bend Revetment area, and an assessment of how such processes influence the occurrence and preservation of archeological deposits within the project reach.

Physiography

The project area lies within the Mississippi Delta Plain of the Holocene deltaic plain physiographic region (Hunt 1974). The episodic progradation of delta complexes associated with the Mississippi and Red rivers over the past 9,000 years created the complex geomorphic surface that forms the Mississippi Delta Plain (Frazier 1967; Penland et al. 1987). This geomorphic surface consists of numerous coalesced or partially buried delta plains that represent the surfaces of individual delta complexes. A typical delta plain exhibits a classic radiating pattern of relict deltaic distributaries extending from a central trunk channel as described by Kolb and Van Lopik (1966) and illustrated by Saucier and Snead (1989) and Snead and McCulloh (1984).

The Carrollton Bend project area lies within the St. Bernard Coastal Region as defined by Goodwin et al. (1991:Figure 1). This region consists of the partially submerged and slowly subsiding delta plains of the St. Bernard (Metairie-La Loutre) delta complex. These delta plains consist of eastwardly radiating bayous and natural levee ridges which represent the abandoned distributary systems of the inactive delta complex (Treadwell 1955:Figures 1 and 2). The portions of the deltaic plain situated adjacent to the Mississippi River have been modified by the lateral migration of the river channel and by the formation of the natural levees (Kolb and Saucier 1982:80; Kolb and Van Lopik 1966:27-33).

The Carrollton Bend project area lies entirely along the left descending bank and on the Mississippi River batture. Prior to levee construction and the historic development of the project area, the area represented the inner edge of the active Mississippi River natural levee. This natural levee can be associated with Meander Belt No. 1, which forms a narrow strip of the modern delta plain of the Mississippi River Delta within the St. Bernard Coastal Region. Because the project area lies on a cutbank of the Mississippi River, these natural levee sediments directly overlie deltaic sediments of the St. Bernard Delta Complex (Kolb 1962, Kolb et al. 1975).

Geomorphology

The delta plains which constitute the St. Bernard Coastal Region are geomorphic surfaces constructed by the aggradation of deltaic sediments. These geomorphic surfaces can be either subaerial or buried and represent either active or abandoned parts of a deltaic system. The feature formed by the constructional surfaces of delta lobes fed from a common trunk channel is called a "delta plain". The subsurface deltaic sediments and the delta plain constitute a single delta complex. An individual delta lobe consists of subdeltas and minor distributaries fed from a single, major distributary (Coleman and Gagliano 1964; Frazier 1967).

The term "delta plain" is reserved solely for the subaerial, constructional surface of a delta complex. Some recent studies, e.g. Penland et al. (1987), confused geomorphic surfaces and subsurface sediments by incorrectly extending the definition of a "delta plain" to include both the surface of the delta and the sediments that form this surface. This definition is incorrect, because a plain of any type is strictly a geomorphic surface consisting of level or nearly level land that lacks any reference to the deposits that form it (Goodwin et al. 1991:21-22).

Delta Complexes

A delta plain is the upper surface and bounding discontinuity of a depositional sequence of delta sediments that lies between upper and lower bounding discontinuities. The lower bounding discontinuity of these sedimentary sequences is defined by an erosional unconformity formed either by fluvial or marine processes. Because these sedimentary sequences can be defined and mapped by bounding discontinuities, they are, according to the formal stratigraphic nomenclature, alloformations (North American Commission on Stratigraphic Nomenclature 1983:865-867). Since these alloformations have not yet been formally named or defined, an informal allostratigraphic unit, the "complex," is used. A complex is defined as a single or temporally related set of surfaces and the associated sedimentary sequence or sequences (Aulin et al. 1990:20, 1991:556).

As used by Frazier (1967), a "delta complex" is an allostratigraphic unit consisting of a lower bounding discontinuity, a regular sequence of deltaic facies, and an upper bounding sequence. The lower bounding discontinuity is either an erosion surface or an older constructional geomorphic surface. Typically, the deltaic sequence consists of a basal layer of transgressive sediments, a middle unit of fine-grained progradational sediments, and an upper unit of aggradational natural levee and marsh sediments. The upper surface of a delta complex, the delta plain, is formed by aggradation sediments.

The lower bounding discontinuity is formed by the landward movement of the shoreline, i.e., a "transgression," over a previously subaerial delta or coastal plain. As the shoreline migrates landward, the beach shoreface typically cuts deeply into the underlying Pleistocene or Holocene sediments. As a result, coastal processes erode up to several meters of the former delta or coastal plain and commonly reduce the sediments to a transgressive sand lag. The erosion and winnowing of these sediments during the submergence of these plains also destroyed the archeological deposits associated with them (Penland et al. 1985).

As a delta complex progrades into the gulf, a thick sequence of progradational deposits accumulates. Initially, clay is deposited from suspension to form a thick blanket of unfossiliferous, parallel-laminated, and fine-grained sediments called "prodelta facies." As the delta moves seaward, the prodelta facies become siltier and parallel and lenticular laminae of silt appear and increase in abundance. With continued progradation, the accumulating deposits consist of laminated silts and clays with thin sand layers called "delta front facies." Studies by Kolb (1962:41-44) and Britsch and Dunbar (1990:22-23), consider the delta front facies to be part of the "interdistributary facies." Locally, the uppermost portion of these sediments forms as a bar at the mouth of the distributary. They consist of interbedded silts and silty sands which display a wide variety of sedimentary structures associated with currents and waves. These sediments have been called the "intradelta facies" by Kolb (1962:41-44) and Britsch and Dunbar (1990:23) and designated as "distributary mouth bar facies" by Coleman (1982:34-39) and other sedimentologists.

The accumulation of natural levee and marsh sediments on the subaqueous progradational deposits contributes to the formation of a subaerial delta plain. The deposition of sediment by floodwaters forms low ridges bordering the distributary channel. Through breaks in the natural levees, floodwaters form crevasse splays that extend onto the adjacent delta plain and subdeltas that extend into and fill the adjacent interdistributary bays. These sediments also are included within the "interdistributary facies" of Kolb

(1962:41-44) and Britsch and Dunbar (1990:22-23). The natural levee and crevasse splay deposits consist of silts, sandy silts, silty sands, and very fine sands that are characteristically small-scale, cross laminated and rippled with intensively bioturbated zones. These sediments are commonly oxidized and contain abundant diagenetic materials such as iron sesquioxide and carbonate nodules and cements. Within the periodically-flooded land situated away from the main distributaries, organic marsh deposits accumulate (Coleman 1982:52).

Eventually, long-term delta lobe progradation leads to an overextension of the distributary network, and to a decrease in hydraulic efficiency. With time, this decrease in hydraulic efficiency can cause an upstream diversion of the trunk channel. When the channel switches to a shorter, more efficient course with a steeper gradient, a new delta complex at the end of the new river channel typically is formed (Fisk 1960).

With the sediment needed to maintain the abandoned delta complex diverted to building a new delta, tectonic and compactional subsidence and eustatic sea level rise will cause the old delta plain to sink beneath the Gulf of Mexico. As the delta sinks, marine processes will rework the surface of the delta complex forming an erosion surface and transgressive sands that form the basal discontinuity and basal deposits of a new depositional sequence. When a delta lobe progrades over this area, these deposits will become part of a new delta complex (Penland et al. 1987).

Fluvial Complex

The meander belt of the Mississippi River within the Mississippi Delta Plain is fairly narrow. This meander belt forms the surface of a basic allostratigraphic unit, informally called a "fluvial complex." A fluvial complex consists of a sequence of fluvial deposits bounded by a basal erosional surface and the upper constructional geomorphic surface of the meander belt. Typically, the basal bounding discontinuity is an erosional unconformity formed by scour along the channel bottom and, by the collapse of a cutbank along the channel (Autin 1989). Fluvial sediments deposited by this channel overlie the basal unconformity. Generally, but not always, these sediments consist of a lower part composed of point bar sands and gravels, overlain by finer-grained and vertically accreted natural levee and overbank sediments (Walker 1984). The upper bounding discontinuity is formed by the meander belt. If later fluvial erosion truncates and buries the upper portion of a fluvial complex, then the upper bounding discontinuity will consist of an erosional surface (Goodwin et al. 1991:22-24).

Within the New Orleans area, the lateral migration of the Mississippi River has created a meander belt 1.0 to 1.8 km wide. As the channel migrated laterally, its cutbank eroded the Holocene deltaic deposits and underlying Pleistocene sediments to depths of 35 to 40 m (115 to 131 ft) below seal level. This laterally migrating channel simultaneously backfilled the opposite bank with coarse-grained point bar sediments. Natural levee deposits from the Mississippi River have buried the deltaic plain adjacent to the meander belt and the point bar deposits within it. The ages, origin, and stratigraphy of the sediments found within the meander belt contrast sharply with the sediments forming the adjacent delta plain. Because of the restricted meandering of the channel, the meander belt within the New Orleans area lacks abandoned meander loops and oxbow lakes, features normally associated with such a process (Kolb 1962:Plate 5 and 6; Kolb and Saucier 1982:80). In part, the narrow meander belt reflects the geologically short length of time that this segment of the Mississippi River has had to develop when compared to other reaches to the north. Also, within the stretch of the Mississippi River from near College Point, River Mile 160, to River Mile 80, the meander belt of the Mississippi River has carved into overconsolidated, durable, clayey Pleistocene sediments. These sediments form a natural revetment that limits the rates at which channel migration can occur. South of River Mile 80, channel migration is limited by the cohesive prodelta and delta front clays that form the banks of the river (Kolb 1962:50-51, 1963:231-232).

Geology

New Orleans, as well as the remainder of southern Louisiana, lies directly upon the surface of a very thick wedge of sand, silt, and clay formed by sediment transported by the Mississippi River. This wedge consists of approximately 12,000 m (7 mi) of alternating Neogene fluvial, deltaic, and marine deposits. These sediments represent the accumulation of hundreds of transgressive-regressive depositional sequences of which the St. Bernard Delta Complex represents one of the latest. The uppermost 640 m (2,100 ft) of this clastic wedge consists of sediments that accumulated during the Pleistocene Epoch. Only the upper 10 to 30 m (33 to 100 ft) represent sediments that accumulated within the last 10,000 years (Kolb and Saucier 1982:77-80).

Three well-defined complexes can be recognized within the project area. The youngest of these allostratigraphic units is the fluvial complex associated with the modern meander belt, i.e., Meander Belt No. 1 of the Mississippi River. The formation of Meander Belt No. 1 has partially buried or removed by erosion the Holocene deltaic sediments of the next older depositional complex, the St. Bernard Delta Complex. The sediments of the St. Bernard Delta Complex completely buried the third allostratigraphic unit, the Prairie Complex as defined by Autin et al. (1991:556-559).

Two, and possibly three, depositional sequences and unnamed alloformations belonging to the Prairie Complex directly underlie the St. Bernard Delta Complex. Within the New Orleans area, these depositional sequences and allostratigraphic units consist of indistinguishable and heterogeneous assemblages of deltaic, shallow marine, and strandline deposits. These depositional sequences are defined by the occurrence of well-defined, often erosional truncated, weathering horizons.

Within the project area, the top of the Prairie Complex is marked by a well developed, truncated weathering horizon that occurs at an approximate depth of 21 to 25 m (69 to 82 ft) below sea level. This weathering horizon, called the "First Pleistocene Horizon" by Kolb et al. (1975:4), is distinguished from the overlying Holocene material by a mottled orange, tan, or greenish gray color, an abrupt decrease in water content, an increase in stiffness and shear strength, and the presence of calcareous nodules (Kolb et al. 1975; Saucier 1977:10-13).

Beneath the project area, the sediments of the St. Bernard Delta Complex measure approximately 20 to 24 m (66 to 79 ft) in thickness. This depositional sequence consists primarily of 6 to 10 m (20 to 33 ft) of basal transgressive and prodelta deposits overlain by 11 m (36 ft) of intradelta sediments. About 3 m (10 ft) of clayey aggradational swamp and marsh deposits cap the progradational deposits and form the buried surface of the St. Bernard Delta Complex (Kolb 1962; Kolb et al. 1975).

Meander Belt No. 1 represents the surface of an unnamed fluvial complex consisting of the point bar and natural levee deposits of the Mississippi River. Under Nine Mile Point, the sediments associated with Meander Belt No. 1 consist entirely of point bar deposits that measure over 41 m (134 ft) thick. The point bar deposits consist primarily of fine sand and silty sand interspersed with thin interbeds of clay. Over 5 to 6 m (16 to 20 ft) of natural levee deposits bury the underlying point bar deposits to form the surface of Meander Belt No. 1 (Kolb et al. 1962; Kolb and Saucier 1982).

Bordering the meander belt, the wedge-shaped body of natural levee deposits extends approximately 1 to 2 km (.62 to 1.2 mi) away from the cutbanks of the Mississippi River and across the adjacent delta plain. Within the project area, about 6 m (20 ft) of natural levee sediments cover the surface of the St. Bernard delta plain, which consists of clayey inland swamp deposits. To the north the natural levee sediments rapidly thin to a thickness of about 3 m (10 ft) and completely pinch out further to the north. Radiocarbon dating material from peats and wood recovered from the natural levees demonstrate that these deposits are less than 1,200 years old (Kolb 1962; Kolb et al. 1975; Kolb and Saucier 1982; Saucier 1963).

Auger testing within the Carrollton Bend Revetment project area indicates that a significant amount of modern overbank sediments underlie the batture surface. A series of 2 m deep auger tests excavated within the project area encountered only poorly consolidated, even semifluid, sediments that have been unaltered significantly by pedogenesis. The typical lack of consolidation and pedogenic alteration indicates sediments of recent origin. The modern nature of these deposits is illustrated by the recovery of a piece of monofilament netting from one auger test situated at the western end of the project area 120 cm (47 in) and a piece of asphalt shingle recovered from 150 cm (59 in) at the eastern end of the project area.

The data from the auger tests also indicates that these deposits consisted of a heterogeneous assemblage of overbank sands, silts, and clays that lack discernable depositional patterns (Appendix I). For example, the auger tests within Transects 16 and 18, penetrated sediments consisting primarily of interbedded silt loam, sandy loam, and loamy sand with minor amounts of silty clay and clayey silt. Some of the beds are clearly laminated. On the other hand, auger tests within Transect 17 produced mostly interbedded and occasionally laminated clayey silts and silty clays. Similarly, the line of auger tests along the baseline penetrated randomly interbedded beds of silty clay, clayey silt, silty clay loam, silt loam, sandy loam, and sand of which some were laminated. The clayey beds often contained fragments of wood and other organic matter. These sediments generally varied in color from very dark gray (10YR 3/1) to dark brown (10YR 3/3), to dark gray (10YR 4/1), or dark yellowish brown (10YR 4/4). Some of the auger tests penetrated sediments with gleyed colors, e.g., gray (5Y 5/1), and olive gray (5Y 4/2) at 1.5 m (5 ft) in depth. However, these colors represent permanently water-saturated sediments, not identifiable stratigraphic layers. From the available data, laterally persistent stratigraphic units could not be defined on the basis of lithology, unconformities, or by the presence of buried soils.

Geomorphic Terranes

Numerous sedimentological and geomorphological studies of the Mississippi River Delta document the direct association between constructional landforms and the sedimentary facies that form them. These studies demonstrate that the distribution of deltaic landforms within a delta plain are directly related to the subsurface distribution of specific depositional facies within the shallow subsurface (Fisk 1960; Kolb and Van Lopik 1966; Coleman 1982). Since a restricted range of sediment types characterizes each depositional facies, the three-dimensional distribution of different deltaic sediments within the near subsurface can be mapped by analyzing the corresponding distribution of landforms and soils. In addition, because depositional facies can be correlated directly with specific depositional environments, the archeological potential of these deposits can be determined from terrane mapping.

The terrane is the basic unit for mapping the subsurface distribution of geologic materials on the basis of associated landforms (Berg et al. 1984). By definition, a terrane is a mappable portion of the surface that exhibits a distinctive assemblage of landforms which are underlain by a specific sedimentary facies. The Carrollton Bend Revetment project area consists entirely of natural levee terrane. Point bar, natural levee, abandoned distributary, and inland swamp terranes occur adjacent to the project area. Because they lie outside of the project area, the inland swamp, point bar, and abandoned distributary terranes are not discussed here. However, Britsch and Dunbar (1990), Coleman (1982), Kolb (1962), and Kolb and Van Lopik (1966) discuss the characteristics of such terranes.

The Carrollton Bend Revetment lies within natural levee deposits formed by the Mississippi River. As previously noted, the natural levee is a wedge-shaped body of sediments associated with the adjacent fluvial complex resting upon the delta plain and sediments of the St. Bernard Delta Complex within the project area. The deposition of sediments by seasonal flooding resulted in the formation of the natural levees along this stretch of the Mississippi River. The details concerning the fluvial processes that form natural levees are documented and discussed by Farrell (1987) and Fisk (1947) and, thus, will not be

repeated here. Because the project area lies within the modern batture of the Mississippi River, it is still subject to frequent flooding and active sedimentation.

Detailed data concerning the lithology of the sediments forming the natural levee within the New Orleans area have not been published. Typically, such natural levees consist predominantly of interbedded silts, clayey silts, and clays with minor amounts of silty sand. The proportion of clay within the natural levee deposits increases with distance from the associated bank of the Mississippi River. Generally, these sediments have been intensively altered by bioturbation and pedogenesis. Thus, the upper portions of these deposits are generally massive, have a reddish brown to brown color, contain iron sesquioxide and carbonate nodules, have low water contents, and are stiff to very stiff in consistency. The older natural levee deposits, which have been effected less by pedogenesis, have grayish colors and have layers which retain their original sedimentary structures. When preserved, these structures include a variety of climbing ripples and small scale cross laminations (Coleman 1982; Kolb 1962:27-40; Kolb and Van Lopik 1966:27-29).

As determined by auger testing conducted during this project, the modern overbank sediments underlying the Carrollton Bend Revetment project area consist of a heterogeneous assemblage of interbedded sandy, silty, and clayey sediments. Although the use of a hand auger to collect samples very likely obscured primary sedimentary structures, many of the beds of silt loam are clearly laminated and, often, interlaminated with silty clay, silt, and sand. The clayey beds frequently contain fragments of wood and other organic materials. In general, these sediments are considerably less weathered, less consolidated, and less effected by pedogenesis than typical natural levee deposits suggesting an accumulation of relatively recent deposits.

The soils developed within the alluvial deposits of the batture consist of frequently flooded Commerce and Sharkey soils. Both soils have developed within poorly drained to very poorly drained, recently-deposited alluvium that is subject to deep and seasonal flooding from the Mississippi River. Overflow from the Mississippi River floods these soils, mostly in spring, to depths of 0.6 to 3 m (2 to 10 ft). The Commerce soils are somewhat poorly drained, neutral to mildly alkaline entisols developed within the recently deposited silt loams and silty clay loams within the batture. Typically, its sola consist of a 50 to 100 cm thick, A-B horizon sequence with silt loam A horizon and silty clay loam B horizon. Sharkey soils are poorly drained, neutral to moderately alkaline inceptisols developed within the recently deposited clayey alluvium found within the batture. Typically, its sola consist of a 91 to 152 cm thick, A-B-Cg horizon sequence with a clay A horizon and either silt loam, silty clay loam, silty clay, clay B and Cg horizons. The Sharkey Soil has a high shrink-swell potential. When dry, it can develop cracks that are 4 cm or more wide and as deep as 50 cm (Matthews 1983).

Paleogeography

During the Late Pleistocene Stage, from 132,000 to 10,000 years Before Present (B.P.), the accumulation and dissolution of continental ice sheets caused eustatic sea level to fluctuate generally 20 to 70 m (66 to 230 ft) below present sea level. Maximum high stands occurred at approximately 120,000 year intervals during interglacial periods such as the Holocene Epoch and early Sangamonian Stage. As a result, the paleogeography of southeastern Louisiana changed as the shoreline migrated north and south across the southeast Louisiana continental shelf and coastal plain. During Oxygen Isotope Stage 5E, the Sangamonian high stand (120,000 years B.P.) sea level reached an elevation of 6 to 7 m (20 to 23 ft) above present levels. At this time, the northern portion of the coast-parallel Prairie Terrace consisted of an active series of coalesced alluvial plains (Autin et al. 1991:556-558; Moore 1982; Suter et al. 1987).

Wisconsinan Stage

During the Late Wisconsinan Stage, the 20,000 year cycle of eustatic sea level fluctuation created a series of depositional sequences. The fall in sea level resulted in the expansion of the coastal plain onto the modern continental shelf, and the accumulation of thin, laterally extensive deposits of shelf-phase deltas and, eventually, the accumulation of thick fluvial deposits on the continental shelf. At maximum low stand, the dropping sea level caused an entrenchment of the shelf by fluvial systems; subaerial exposure of the shelf; and the deposition of thick shelf-margin deltas at the shelf edge. When sea level rose, the ensuing transgression submerged, eroded, reworked, and redistributed fluvial and deltaic deposits as broad sand sheets and shoals. As the rise in sea level ceased or slowed to a low rate, fluvial systems, delivering an abundant supply of sediment to the coast, then built deltaic complexes that prograded seaward and onto the shelf (Coleman and Roberts 1988; Suter et al. 1987).

Each cycle of eustatic sea level fluctuation created a depositional sequence of fluvial, deltaic, estuarine, and marine sediments separated either by exposure surfaces or erosional unconformities. As a result, the repeated fluctuations in sea level left an accumulation of sediments that formed the modern continental shelf and coastal plain of Louisiana (Coleman and Roberts 1988; Suter et al. 1987). The upper two depositional sequences of the Pleistocene sediments which underlie the New Orleans area appear to represent materials deposited between 21,000 to 120,000 years B.P. (Autin et al. 1991:558; Saucier 1977:10-13).

Around 21,000 years B.P., at the start of the Late Wisconsinan Substage, relative sea level dropped from the highest Middle Wisconsinan high stand of 20 m (66 ft) below present sea level to its maximum Late Pleistocene low stand at about 120 m (394 ft) below present sea level. In response, the shoreline shifted to the modern shelf edge, subaerially exposing large areas of the continental shelf. Surficial weathering formed a truncated weathering horizon, i.e., the "First Pleistocene Horizon" as described by Kolb et al. (1975:4). The Mississippi River and its tributaries responded by partially reentrenching the Mississippi Valley by 25 to 30 m (82 to 100 ft). Similarly, the major streams within the New Orleans area entrenched their valleys by 6 to 9 m (20 to 30 ft) (Kolb et al. 1975:Plate 2; Saucier 1963:Figure 14, 1977:10-13; Suter et al. 1987).

By 10,000 years B.P., relative sea level rose episodically from approximately 120 m (394 ft) below sea level to 30 m (100 ft) below sea level. A wide, deeply cut, erosional terrace along the edge of the outer continental shelf records a still stand about 80 to 90 m (262 to 295 ft) below modern sea level. In addition, during a stillstand between 9200 and 8200 years B.P., the "Outer Shoal Delta Complex, whose delta plain lies at depths of 15 to 25 m (49 to 82 ft), apparently formed (Frazier 1974; Goodwin et al. 1991:36).

Holocene Epoch

As the Late Wisconsinan-Holocene sea level rise submerged the modern Louisiana Continental Shelf, the transgressing shoreline substantially modified its surface. The degree of transgressive erosion varied from the minor removal of overbank deposits from existing natural levees to the complete erosion of the alluvial plains within coast-parallel terraces. During still stands, local accumulations of lagoonal, chenier, or other aggradational coastal plain deposits may have buried the coastal plain deep enough to have protected it from this transgressive erosion (Pearson et al. 1986:224-245; Suter et al. 1987).

In addition, shelf and transgressive shoreface processes substantially modified both strandlines and deltas. Shoreface erosion deeply eroded the surfaces of the Late Wisconsinan and Early to Middle Holocene deltas and formed extensive ravinement surfaces. Shelf and sound processes eroded and redistributed the upper parts of many barrier islands, cheniers, and deltas into marine sheet sands and east-west oriented sand shoals. Even though three or four of these offshore sand ridge trends represent the remains of

drowned strandlines, the original barrier islands and beach deposits have been almost totally reworked into marine sand shoals. During this epoch, the entrenched valleys of the Mississippi River and local streams were filled with fluvial, estuarine, and sometimes lagoonal sediments (Frazier 1974:19-24; Penland et al. 1985; Penland et al. 1987; Suter et al. 1987:210-214).

From about 7500 to 5500 years B.P., a stillstand occurred during an otherwise rapid rise in sea level, at a depth 5 to 6 m (16 to 20 ft) below present levels. During this stillstand, the Maringouin Delta Complex developed (Frazier 1967, 1974). Frazier (1967:269) noted the presence of two stacked, depositional sequences within this complex.

As sea level rose, the Gulf of Mexico flooded the Late Wisconsinan eastern Louisiana coastal plain. By 5000 years B.P., the shoreline had reached the edge of the modern Prairie Terraces forming the Pontchartrain Embayment. Between 5100 and 4000 years B.P., longshore currents created and maintained a chain of barrier islands and shoals which extended southwest across the embayment from the mouth of the Pearl River. This chain of shoal and scattered islands, called the "New Orleans Trend," created the gulfward boundary of an ancient Pontchartrain Bay (Figure 2). By about 5000 years B.P., rising sea level also flooded the Mississippi Alluvial Valley and created a brackish water embayment that extended up near Baton Rouge (Otivos 1978; Saucier 1963:44-46).

To the west, the renewed rise in sea level submerged most of the surface of the Maringouin Delta Complex. The Teche Delta Complex began to develop around 5,800 years ago. Between 5800 and 3900 years B.P., the Mississippi River built the Teche Delta Complex; this covered the existing Maringouin Delta Complex (Figure 2) (Frazier 1967; Weinstein and Gagliano 1985:120-123).

About 4800 years B.P., the Mississippi River began to shift its course from Meander Belt No. 3 to Meander Belt No. 2 at Marksville, Louisiana; this diverted much of the flow down the eastern and central part of the Mississippi Alluvial Valley (Autin et al. 1991). As a result, a new delta complex, called the "early St. Bernard Delta Complex" by Frazier (1967) and the "Metairie Delta Complex" by Weinstein and Gagliano (1985:122-123) prograded into and through the New Orleans area (Figure 2). The main delta of this complex prograded about 70 km (44 mi) southeast of New Orleans and into the Gulf of Mexico. By 4000 years B.P., another small delta of this complex had prograded northeast and buried a chain of southwest trending barrier islands, the New Orleans Barrier Island Trend. The New Orleans Trend shifted slightly eastward to form the Bayou Sauvage Trend of shoals and barrier islands. The burial of the New Orleans Trend by deltaic deposits remade Pontchartrain Bay into a brackish water bay ancestral to Lake Pontchartrain (Otivos 1973:31-33; 1978:Figure 16; Saucier 1963:56-59).

From about 3400 to 1600 years B.P., the Metairie Delta Complex developed into the La Loutre Delta Complex as defined Weinstein and Gagliano (1985:123) or the St. Bernard Delta Complex of Frazier (1967). This delta complex formed two major delta lobes that prograded from the New Orleans area (Figure 2). The larger delta, La Loutre Delta, prograded eastward to form most of St. Bernard Parish. By 3000 years B.P., this delta lobe had buried the New Orleans Trend and created Lake Pontchartrain. A smaller delta, the Des Familles Delta, prograded southward from the New Orleans region. From 1800 to 600 years B.P., only the Bayou Sauvage delta of the St. Bernard Delta Complex remained active.

Between 4800 and 2000 years B.P., Bayou Lafourche slowly prograded southward from the New Orleans region (Figure 2). Between 4800 and 3500 years ago, Bayou Lafourche apparently formed and began to slowly prograde southward. It reached Thibodaux by the end of this period. Between 3500 and 2000 years B.P., some flow continued to be diverted down Bayou Lafourche extending it slowly southward, building the Terrebonne and Lafourche delta lobes (Weinstein and Gagliano 1985:123). The distributaries of the Terrebonne Delta Complex probably reoccupied relict distributaries of the former Teche Delta Complex. By 2000 years B.P., the Lafourche Delta Complex reached its peak discharge.

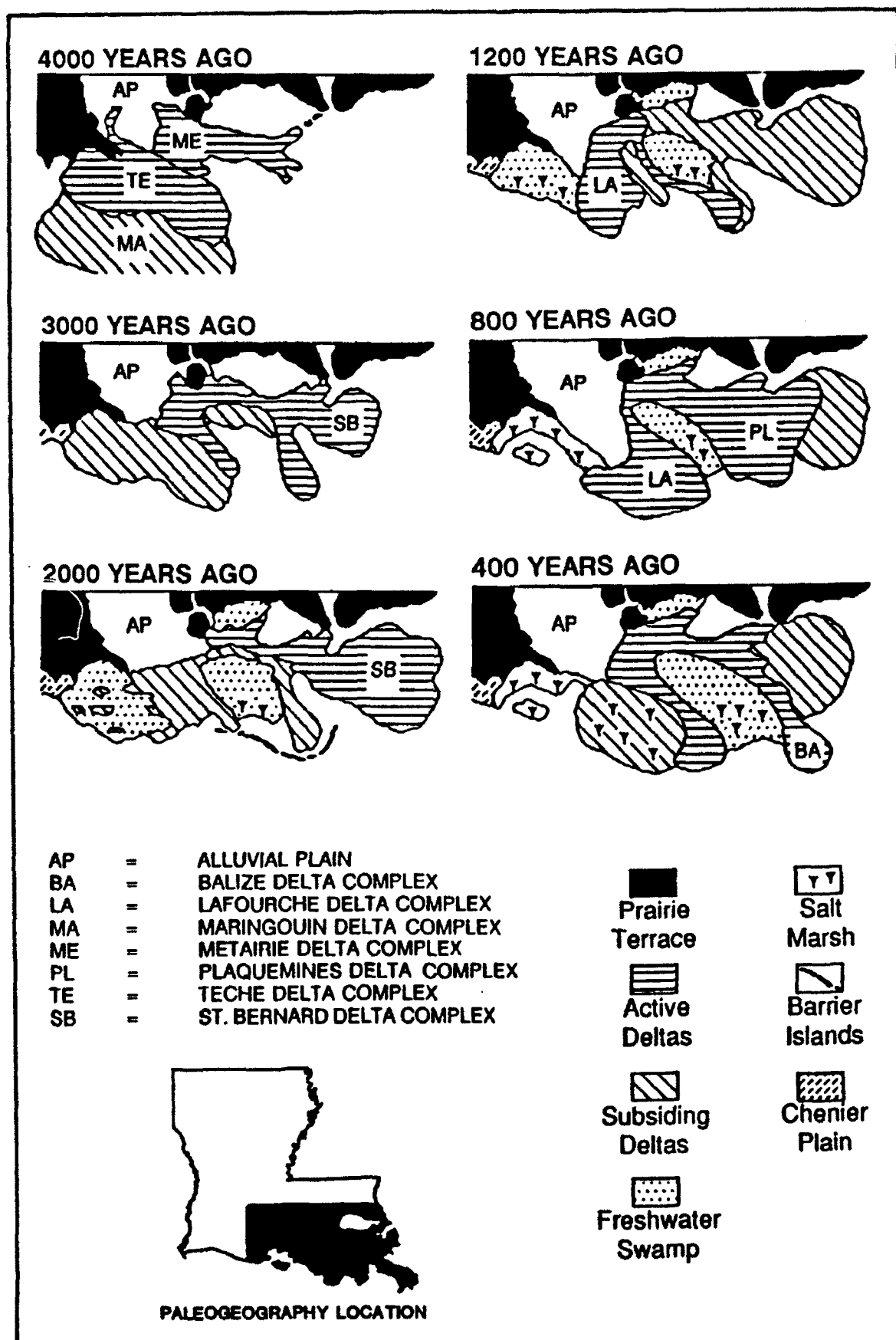


Figure 2. Paleogeography of the Mississippi River Delta.

By about 1000 years B.P., the discharge through the Lafourche Delta Complex began to wane as the discharge of the Mississippi River reoccupied the St. Bernard/La Loutre Delta Complex. Flow through the Terrebonne Delta stopped and active progradation of that delta ceased. Since then, the Terrebonne Parish region has been subsiding slowly. Bayou Lafourche remained an active distributary of the Mississippi River until artificially closed in 1904 (Weinstein and Gagliano 1985:144).

About 1000 years B.P., the relict feeder channel of the St. Bernard (La Loutre) Delta complex was reoccupied partially and a delta of the Plaquemines Delta Complex prograded through the interlobe basin between the Des Familles and La Loutre deltas of the St. Bernard Delta Complex. Initially, the discharge flowed through a series of channels in this basin, such as the River aux Chenes, Belair, and Bayou Grande Cheniere. By approximately 600 years B.P., the Bayou Grande Cheniere became the modern course of the Lower Mississippi River. As the shoal-water Plaquemines Delta Complex prograded off the shelf edge, the shelf-margin Balize Delta formed (Weinstein and Gagliano 1985:125, 143).

Geoaicheology

The geomorphic setting and the associated sedimentology greatly restricts the potential for encountering archeological deposits within the project area. During the prehistoric and early historic periods, the project area lay on an actively aggrading natural levee of the Mississippi River. Construction of the artificial levee system confined riverine processes to the batture; this area remains subject to occasional periods of rapid sedimentation. As a result, it is highly unlikely that any prehistoric and/or most historic deposits within the project area will manifest themselves as surface sites. Because of the relatively high rates of sedimentation that characterize the natural levees within this young and evolving segment of the Mississippi River, it is very likely that all prehistoric archeological deposits within the area will be deeply buried within the natural levee sediments that form the project area (Farrell 1987; Heinrich 1991). Similarly, the continued episodic periods of deposition indicate that even historic archeological deposits might be deeply buried within the batture.

The geomorphic setting of the project area severely restricts the potential for encountering buried archeological deposits. Buried archeological deposits will be associated with the delta plain of the St. Bernard Delta Complex and the Prairie Terraces of the Prairie Complex. In addition, significant archeological deposits probably are absent from the progradational deltaic deposits that underlie the project area because of their subaqueous environment of deposition. However, the natural levee sediments overlying the point bar sediments within the project area have some potential for containing deeply buried prehistoric archeological deposits.

The age of the deposits are restricted severely by the age of the natural levee sediments. Within the project area, the deltaic deposits of the Plaquemine Delta Complex probably started to accumulate during the initial phase of its construction, i.e., about 1000 radiocarbon years B.P. Sometime after that, the accumulation of natural levee deposits along the Mississippi River began. Only after the natural levee sediments started to accumulated could archeological deposits be preserved within the project area. As a result, any prehistoric archeological deposits within the project area would be less than a 1,000 years old.

Historic Bankline Changes in the Project Area Vicinity

A comparison of the 1893 and 1921 Mississippi River Commission Charts 75 and 76 with the 1965 (photorevised 1972 and 1979) USGS 7.5' series topographic quadrangle, New Orleans West, Louisiana, documents historic bankline change within the project area vicinity (Figure 3). In 1893, the Mississippi River flowed within 50 to 100 m (164 to 328 ft) of the modern artificial levee along most of the archeological survey portion of the project area. Near the downriver end of the archeological survey area, the 1893 bankline

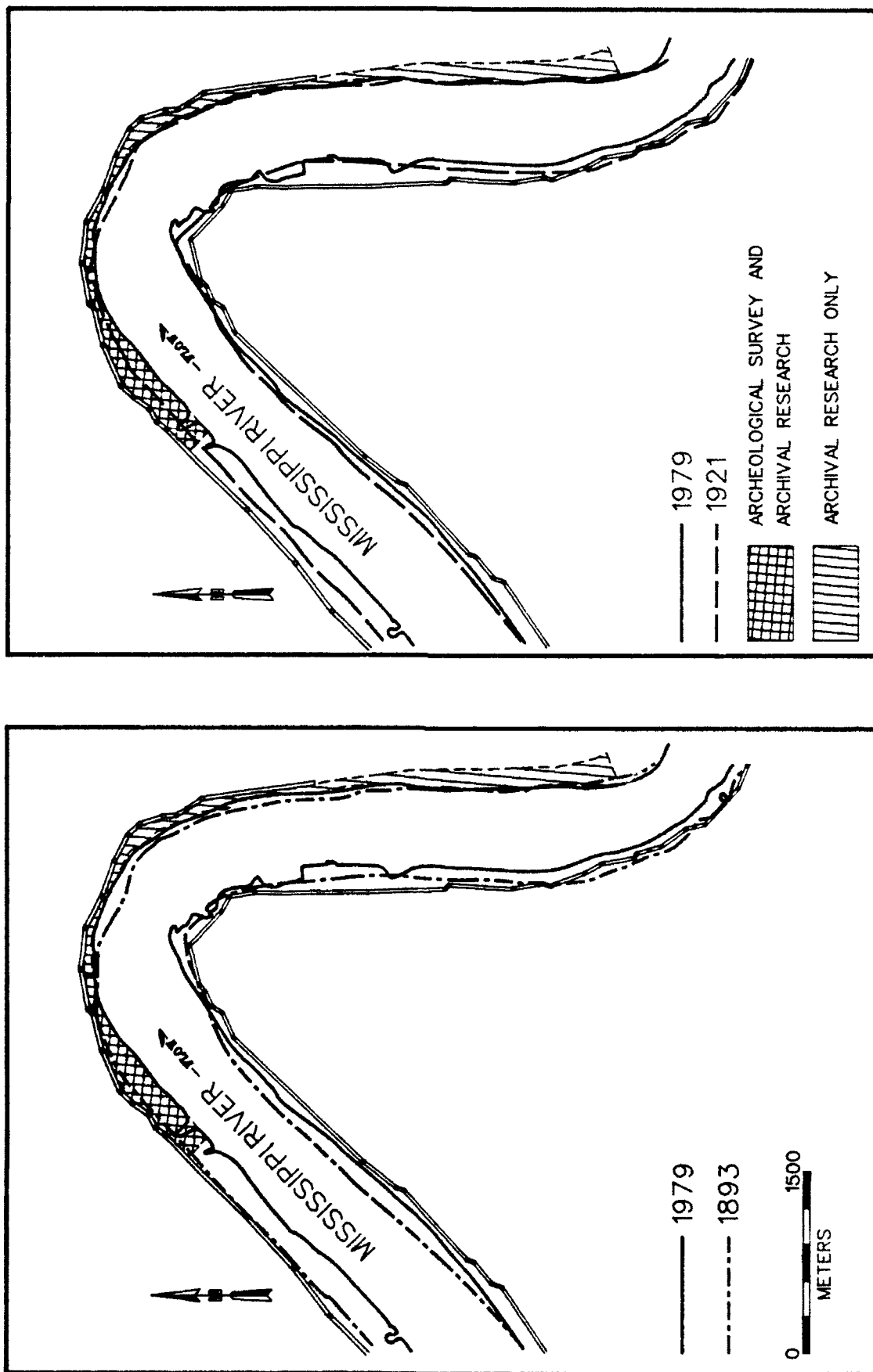


Figure 3. Comparison of the 1893 (Sheets 75 and 76) and 1921 Mississippi River Commission charts, and the 1965 (photorevised 1972 and 1979) USGS 7.5' series topographic quadrangle, New Orleans West, Louisiana.

extended into the modern river. Throughout the remainder of the project area, to the vicinity of the Audubon Zoological Park, and corresponding with the existing Carrollton Bend Revetment, the modern alignment of the river cuts up to 50 m (164 ft) into the 1893 bankline. By 1921, portions of the project area had aggraded to a point approximately halfway between the modern artificial levee and the modern bankline. At the downriver end of the survey area, and the upriver end of the existing Carrollton Bend Revetment, the 1921 bankline is cut by the modern bankline. However, the downriver 4 km (2.5 mi) remained nearly unchanged between 1921 and 1979, demonstrating the stability of the Carrollton Bend Revetment system.

Fauna and Flora

Vegetation within the project area has been disturbed considerably by the construction of the adjacent artificial levee and by modern land use. Little is known about the native vegetation that existed on the natural levees of this area prior to its occupation by European settlers. Presumably, it resembled communities still found along the natural levees of distributaries found elsewhere in the Mississippi Delta Plain. If so, then these natural levees probably were covered by an oak forest assemblage. The principle overstory would have included water oak (*Quercus nigra*), overcup oak (*Quercus lyrata*), cottonwood (*Populus deltoides*), sweetgum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*), redgum, black willow (*Salix nigra*), hackberry (*Celtis laevigata*), swamp privet (*Forestiera acuminata*), water locust (*Gleditsia aquatica*), and honey locust (*Gleditsia triacanthos*). The understory probably contained shrubs such as buttonbush (*Cephalanthus occidentalis*), wax myrtle (*Myrica cerifera*), dwarf palmetto (*Sabal minor*), marsh elder, elderberry (*Sambucus canadensis*), and yaupon (*Ilex vomitoria*). Vines such as trumpet creeper (*Campis radicans*), poison ivy (*Rhus radicans*) and ratten vine (*Berchmis scandens*) also were common. The groundcover probably consisted of various grasses (*Gramineae*) and sedges (*Cyperaceae*) (Craig et al. 1987; Penfound and Hathaway 1938).

Similarly, little is known about the fauna present within the prehistoric oak forests that occupied the natural levees of the Mississippi River and Bayou des Familles. However, these forests undoubtedly supported a variety of mammals, birds, and reptiles. The fauna once found within the natural levee terrain probably included large mammals such as white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), fox squirrel (*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), swamp rabbit (*Sylvilagus aquaticus*), and black bear (*Ursus americanus*). Undoubtedly, predator mammals such as red fox (*Vulpes fulva*), gray fox (*Urcyon cinereoargenteus*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), mink (*Mustela vison*), and bobcat (*Felis rufus*) were common. These species together with raptors were important in limiting the size of rabbit, mouse, squirrel, and bird populations. The mink and raccoon also were important as fur bearers. Birds found within these forests included the painted bunting (*Passerina cirris*), red-winged blackbird (*Agelaius phoeniceus*), common crow (*Corvus brachyrhynchos*), common night hawk (*Chordeiles minor*), screech owl (*Otus asio*), black vulture (*Coragyps atratus*), turkey vulture (*Cathartes aura*), and many others. The prehistoric oak forests were home to numerous amphibians such as salamanders, toads, tree frogs, and true frogs. Reptiles common to these forests included iguanids, skinks, lizards, snakes, pit vipers, and turtles (Lowery 1974a, 1974b; Penfound and Hathaway 1938).

Climate

The project area has a humid subtropical climate with prevailing southerly winds. The summers are hot and humid and the winters are warm. The winters are occasionally interrupted by incursions of cool air from the north (Trahan 1989). The average annual normal rainfall within Orleans Parish is 59 in (150 cm). The months of July, August, and September are the wettest, with a normal average precipitation that varies from 6.19 to 6.32 in (15.7 to 16.0 cm). October is the driest month with a normal average precipitation of 2.84 in (7.21 cm). The heaviest one-day rainfall during the period of record was 9.8 in (24.9 cm); this

occurred in New Orleans on May 31, 1959. Rainfall and hurricane storm surge are the main causes of flooding. The rainfall associated flooding results from either near-stationary cold fronts or hurricanes. Both causes are capable of producing rainfall at a rate of one or more inches per hour (Trahan 1989).

Maritime tropical air masses originating in the Gulf of Mexico help keep temperatures within the project area from varying greatly throughout the year. The average normal maximum annual temperature for this area is 77.4° F. During the winter, the average normal maximum annual temperature is 54° F. The coldest month is January with an average maximum temperature of 61.5° F. The average normal maximum annual temperature recorded for the summer is 90° F. The hottest month is July with an average maximum temperature of 90.4° F. The lowest recorded temperature, which occurred at New Orleans in February 1899 is 6.8° F. The highest recorded temperature occurred on June 27, 1967; it was 98° F (Magill 1990; Trahan 1989).

CHAPTER III

PREHISTORIC SETTING

Introduction

Louisiana's Comprehensive Archaeological Plan (Smith et al. 1983) divides the state into six management units. The project area lies on the east (left descending) bank of the Mississippi River, in Jefferson and Orleans parish, within Management Unit V. Six cultural units form the prehistoric sequence of this management unit: Poverty Point, Tchefuncte, Marksville, Troyville-Coles Creek, Plaquemine, and Mississippian. However, the geomorphic development of the project area demonstrates that the prehistoric sites in the area are less than 1,000 years old. Therefore, this chapter includes only the Troyville through Mississippian cultural units, as well as a brief discussion of the Historic Contact period. Information about the Paleo-Indian through Marksville cultural units is available elsewhere (Neuman 1984; Smith et al. 1983; Webb et al. 1971; Muller 1983; Neitzel and Perry 1978; Jenkins 1974; Walthall 1980).

Troyville-Coles Creek Culture (A.D. 400 - 1100)

Troyville culture, also called Baytown, was named after the mostly-destroyed Troyville mound group (16CT7) near Jonesville, Louisiana. Troyville represents a transitional culture that supplanted the waning Marksville Culture around A.D. 400, and culminated in Coles Creek culture around A.D. 700. While originally viewed as two distinct periods, the similarities and interconnections between Troyville and Coles Creek suggest that they generally should be studied as a single, evolving cultural unit with earlier and later manifestations (Smith et al. 1983). Troyville marks the end of a general subsistence pattern that began in Archaic times; although various groups experienced periods of cultural efflorescence (Poverty Point, Marksville), these occurred within an essentially Archaic milieu (Gibson 1978). Two technological advances that date from the early part of the period and radically altered prehistoric lifeways include subsistence agriculture, and the use of the bow and arrow. During Troyville times, maize, bean, and squash agriculture became widespread, leading to more complex settlement, social, and subsistence patterns (Smith et al. 1983).

During Troyville-Coles Creek times, population increased throughout coastal Louisiana. This increase is reflected by both the size and number of sites found throughout the area. Wetland niches exploited by the earlier Tchefuncte culture were re-inhabited during Troyville-Coles Creek times, however, subsistence pursuits differed (Gibson 1978). Smaller mammals and larger aquatic reptiles and fish were exploited by the later culture. Fresh, brackish, and salt water environments also were exploited. Mussels, particularly *Rangia* sp., supplemented horticulture and hunting pursuits. Intensive exploitation of plants, and slash-and-burn horticulture, contributed to sedentism and community autonomy (Gibson 1978). Subsistence was varied and adaptable to different locations during this time. Settlement patterns in the coastal estuarine areas remained similar to those utilized by the preceding Late Archaic through Marksville cultures; the primary differences were expressed in the ceramic assemblages. Coles Creek sites primarily were situated along stream systems where soil composition and fertility were favorable for agriculture. Natural levees, particularly those situated along old cutoffs and inactive channels, appear to have been the most desirable locations (Neuman 1984; Smith et al. 1983).

Coles Creek sites typically are larger, more numerous, and more complex than those of their predecessors. The platform and ceremonial mound construction, as well as the complex layout of some Coles Creek sites imply the emergence of a chiefdom-like society and a complex social structure (Muller 1983; Smith et al. 1983). A centralized authority and sizable labor force were necessary to build, maintain,

and utilize these mounds. The centralized authority probably included a special religious class, while the general population probably occupied the region surrounding these large, more elaborate centers (Neuman 1984; Smith et al. 1983). Small Coles Creek sites consist mostly of hamlets and shell middens and normally do not contain earthen mounds. Coles Creek shell middens commonly occur throughout the coastal region and are located primarily on the higher portions of the natural levees (Springer 1974).

Several ceramic types utilized by the Troyville culture continued into the Coles Creek times. For example, Churupa Punctate and Mazique Incised are characteristic of Troyville culture, however, both continued to be produced by Coles Creek and Plaquemine pottery makers (McIntire 1958). Similarly, French Fork Incised, which formed the basis for many Troyville classifications, continues to appear well into the Coles Creek period (Phillips 1970).

Coles Creek peoples developed a more elaborate ceramic complex that included the production of larger vessels, as well as a wider range of decorative motifs, which usually were placed around the upper half of the vessel (Neuman 1984). Coles Creek pottery is characterized by Coles Creek Incised, Beldeau Incised, Mazique Incised, and Pontchartrain Check Stamped. The distinctive Coles Creek Incised ceramic type contains a series of incised lines positioned near the rim of the vessel. These lines often are accompanied underneath by a row of triangular impressions (Smith et al. 1983). Some ceramic motifs suggest outside cultural influences. For example, zoned rocker stamping, incised lines, and curvilinear motifs are representative of decorative styles associated with the Florida Gulf Coast; cord marking and red filming are traits commonly associated with cultures occupying the central Mississippi area (Smith et al. 1983).

Plaquemine Culture (A.D. 1100 - 1600)

Plaquemine culture represents an indigenous development that emerged from Coles Creek around A.D. 1100. Plaquemine peoples continued the settlement patterns, economic organization, and religious practices established by the Coles Creek culture; however, agriculture, socio-political structure, and religious ceremonialism intensified. Plaquemine sites often are characterized as ceremonial sites and contain multiple mounds situated around a central plaza. These ceremonial sites are often surrounded by dispersed villages and hamlets (Smith et al. 1983).

Plaquemine culture first was defined at the type site, Medora (16WBR1), which is located in West Baton Rouge Parish near the city of Plaquemine, Louisiana (Quimby 1951). This site is a large ceremonial center located on the Mississippi River floodplain at Manchac Point, south of Baton Rouge. Quimby recorded and excavated two mounds at the site. Based on his excavations, Quimby developed a trait list to characterize Plaquemine culture. Traits commonly associated with Plaquemine culture included the construction of truncated, pyramidal (platform) mounds in association with an adjacent plaza; mounds built in stages; square or circular buildings (temples) associated with mounds; and, a distinctive ceramic assemblage characterized by a comparatively high proportion of plain dishpan-shaped bowls, jars with brushed decoration, and plates with interior decoration (Quimby 1951:129).

While derived from the Coles Creek tradition, Plaquemine pottery displays distinctive features that mark the emergence of a separate culture. Even though incising and punctating of pottery continued through the period, brushing emerged as the dominant decorative technique. Some vessels also were engraved after firing (Smith et al. 1983). Plaquemine Brushed appears to have been the most widespread ceramic type. Other types include Harrison Bayou Incised, Manchac Incised, Mazique Incised, Leland Incised, Hardy Incised, L'Eau Noire Incised, and Evansville Punctate. Decorated wares and plain wares (e.g., Anna Burnished Plain and Addis Plain) were well-made. Tempering, paste, and vessel shape are similar to earlier ceramic forms.

Mississippian Culture (A.D. 1100 - 1700)

Late during the prehistoric sequence, the indigenous Plaquemine culture was influenced heavily by Mississippian culture. Mississippian influence radiated from the middle Mississippi River Valley to southern Louisiana, into central North Carolina, and north into the Great Lakes region (Haag 1971). Mississippian sites in Louisiana typically are located along the extreme southeastern coast, and in an isolated pocket in the northeastern part of the state.

Mississippian culture exhibited a subsistence system based on the cultivation of maize, beans, squash, and pumpkins; the collection of local plants, nuts and seeds; and, the exploitation of numerous riverine and terrestrial species. The major Mississippian sites were located in the fertile bottomlands of the larger river valleys; sandy and light loam soils usually composed these areas. A typical Mississippian settlement consisted of an orderly arrangement of village houses surrounding a truncated pyramidal mound. These mounds probably served as platforms for religious temples or as house platforms for the elite. A highly organized and complex social system undoubtedly existed to sustain these intricate communities.

Mississippian ceramics are characterized by shell tempering, an innovation that enabled potters to create larger vessels (Smith et al. 1963). Ceramic vessels such as globular jars, plates, and bottles, as well as loop- and strap-handled pots were used by Mississippian peoples. Decorative techniques included engraving, negative painting, and incising; modelled animal heads and anthropomorphic images also adorned some ceramic vessels. Other Mississippian artifacts included chipped and ground stone tools; shell items such as hairpins, beads, and gorgets; and mica and copper items.

Historic Contact

Lifeways of the early historic Indians remained similar to those of the Late Mississippian and Plaquemine peoples. The Indians practiced subsistence agriculture and grew maize, beans, squash, and pumpkin. Agriculture was supplemented by the gathering of wild plants; hunting and fishing also remained important components of the aboriginal subsistence system.

Villages remained analogous to those observed at Plaquemine and Mississippian sites. The larger villages featured one or more truncated pyramidal mounds surmounted by houses and temples; the remaining population lived in the areas surrounding the center. Houses apparently were rectangular, with wattle and daub walls and thatched roofs (Swanton 1946).

During the early eighteenth century, a number of tribes lived in the area. The Ouacha (Washa) generally lived along Bayou Lafourche and in the Barataria Basin region, although they also traveled along the lower Mississippi River and the Gulf coast. The Chaouacha (Chawasha) apparently lived in the Scarsdale - Belle Chasse area near English Turn. Between 1699 and the mid-1700s, periodic conflict between the Chaouacha and French settlers gradually depleted the tribe; by the late 1750s, only one small village of the Chaouacha remained in the New Orleans region (Swanton 1946; Kniffen et al. 1987).

The late seventeenth century Chitimacha tribe apparently controlled much of the upper Barataria Basin along both Bayou Lafourche and the Mississippi River. Their population was decimated during the eighteenth century by disease, war, and cultural pressures applied by French settlers. In response to increasing pressure from the European settlers, the tribe moved into the largely unpopulated areas of southeastern Louisiana; this enabled the tribe to survive into the twentieth century (Kniffen et al. 1987; Swanton 1946).

Several other tribes frequented the lower Mississippi River during the early eighteenth century, including the Bayou Goula, the Quinapisa, the Acolapissa, the Mugulasha, the Okelousa, and the

Tangipahoa. All of these tribes decreased rapidly in population through the eighteenth century as French and Spanish settlers occupied increasing amounts of the region. During the eighteenth century, these tribes died out, moved westward, or were assimilated into remnant tribes scattered throughout the unpopulated portions of southern Louisiana (Kniffen et al. 1987). By the mid to late eighteenth century, no Indian tribes remained in the general vicinity of the project area.

CHAPTER IV

CARROLLTON BEND: THE PROJECT AREA IN HISTORICAL PERSPECTIVE

Introduction

The project area occupies a stretch of land extending along the east bank of the Mississippi River within Jefferson and Orleans parishes. Historically, the fertile soils of the Mississippi riverbank supported the agricultural production of indigo, sugar cane, and rice. Sugar remained a dominant crop in the region through the nineteenth century. The project area witnessed the encroachment of suburban development beginning in 1833, when a portion of the area was subdivided into the village of Carrollton. The emergence of the railroad during this period spurred the development of the town as an independent city; in 1874, Carrollton was annexed to the City of New Orleans. Beginning in the late nineteenth century, riverfront commercial and residential structures were displaced by levee and revetment construction, the building of the Orleans Public Belt Railroad line, and modern development such as the U.S. Army Corps of Engineers offices. This chapter presents a general historic context of the Carrollton Bend area and a discussion of the potential for archeological resources within the study area.

French Occupancy of the Project Area, 1719 - 1724

During the early eighteenth century, France supported several attempts to colonize the Province of Louisiana. In 1712, Sieur Crozat was authorized to establish trade within the colony. After his efforts failed and Crozat relinquished his patent in 1717, the King of France provided John Law's Mississippi Company (later known as the Western Company or the Company of the Indies) exclusive trading rights. The company also was authorized to grant land within the Province of Louisiana to promote settlement and agriculture (Ledet 1938:221-222, Swanson 1975:67).

Soon after he founded the city of New Orleans, Jean Baptiste le Moyne, the Sieur de Bienville, obtained a grant, in 1719, to an immense tract of land that included present-day Carrollton and most of the project reach (Mahé 1976:11). The Company of the Indies confirmed this concession in 1720 (Swanson 1975:67). Bienville's grant extended for eight miles upriver, from modern-day Bienville Street in the Vieux Carré, to about Monticello Avenue, the boundary between Orleans and Jefferson parishes. Almost simultaneously in 1719, John Law's the Company of the West began granting land immediately upriver from the Bienville tract to European investors and a handful of Canadians. Usually known as the Chacoutouas or Tchoupitoulas settlement, these early eighteenth century concessions extended along the so-called east side of the Mississippi River from Monticello Avenue to Kenner (Bezou 1973:x, Swanson 1975:66). The Chacoutouas concessions also included a portion of the project area (Swanson 1975:65, 69; Wilson 1987:6,225).

The Carrollton Area, 1728 - 1831

Although Bienville's grant was annulled in 1728 through the Edict of the Council of State at Versailles, the vast tract in the Carrollton area remained largely intact for more than a century (Mahé 1976:12). The founder of New Orleans unsuccessfully attempted to regain control of the property until 1737. Beginning in the late 1720s, the land in the Carrollton vicinity passed successively first to Nicolas Chauvin de La Frénière and then to his heirs, and his son-in-law, Louis Césaire LeBreton. LeBreton enlarged his

holdings by acquiring 12 arpents along the riverfront in 1751 and 15 arpents in 1758. The governors of the French colony confirmed these acquisitions in 1757 and 1764 respectively (Bezou 1973:32, 34-36, 71).

Upon LeBreton's death, Barthelemy Daniel Macarty in 1781 bought from the LeBreton succession an enormous tract that extended 32 arpents along the Carrollton Bend, where he established a sugar plantation (Ledet 1938:227). The purchase extended back from the river 40 arpents (Mahé 1976:12; Bezou 1973:71). Barthelemy Macarty bequeathed the estate to his eldest son, Jean-Baptiste Macarty, who died November 10, 1808. The will of Jean-Baptiste Macarty divided the property among his three children. Nevertheless, by 1831, the Macarty heirs had sold their interest in the estate to John Slidell, Laurent Millaudon, Samuel Kohn, and the New Orleans Canal and Banking Company. In 1833, the developers and the banking company hired a surveyor, Charles F. Zimpel, divided the former plantation into lots and squares, and offered it for sale as the village of Carrollton (Mahé 1976:10-12; Bezou 1973:70-73).

The Tchoupitoulas Settlements, 1719 - 1836

Although the spelling varied considerably through the years, the name of the settlement above Carrollton Bend had become standardized as Tchoupitoulas by 1825 (Foster 1987:16). Explanations for the name had as many variations as its spelling. The most popular exegesis argues that the name derives from the Choctaw language and means those who reside at the river (Chase 1979:41-48; Whitbread 1977).

Claude Joseph Dubreuil de Villars and three brothers named Chauvin became the first concessionaires at the Tchoupitoulas district. Dubreuil initially had arrived in the Louisiana Colony ca. 1718 with his family, his partner Bernard Lantheaume, and his entourage of servants, artisans, and laborers (Bauer 1987:21). Dubreuil established a large indigo plantation near the present site of Ochsner Foundation Hospital. In addition to crop cultivation, Dubreuil experimented with animal husbandry, raising cattle, horses, and pigs (Bauer 1987:22). A slaveholder whose workmen helped to clear the site of the Crescent City and build the first levees, Dubreuil as contractor for the King's works built most of the early public structures in New Orleans, including the Ursuline Convent (1745-1750), which still stands on Chartres Street.

In 1745, Dubreuil gave his Tchoupitoulas Plantation to his sons, while he developed a plantation on Elysian Fields in today's Faubourg Marigny. Dubreuil was one of the first planters in Louisiana to experiment with growing sugar cane after the introduction of the plant to the colony by Jesuit priests in 1750 (Wilson 1980:55-56, Swanson 1975:67). However, his attempts at processing large quantities of the cane into quality sugar for export to France failed (Bauer 1987:25-26). In the meantime, the Chauvin brothers utilized slave labor, established a woodyard, sold lumber, raised cattle, and grew indigo, corn, potatoes, beans, and rice on their Tchoupitoulas holdings (Bezou 1973:23).

Two important studies graphically present a reconstruction of land ownership along the Tchoupitoulas coast from the earliest European settlement to the nineteenth century. In his study of the De La Barres, a family long prominent in the project area, William D. Reeves offers a "Schematic Plan of Landholdings on the Tchoupitoulas Coast 1723-1850" (Reeves 1980:45). Another graphic representation of land ownership appears in an archeological study of Elmwood Plantation, which is located slightly upriver from the project area but nevertheless occupies a portion of the Tchoupitoulas settlement. The study of Elmwood provides an "Archival reconstruction of land ownership along the Chapitoulas Coast" that deals with the Chauvin concessions from 1719 to 1836 (Goodwin et al. 1984:6). Because of errors and obscurities in the two previous graphic representations, the present study includes a "Schematic representation of the general land tenure history for the Carrollton Bend study reach, from concession grant to 1860" (Figure 4).

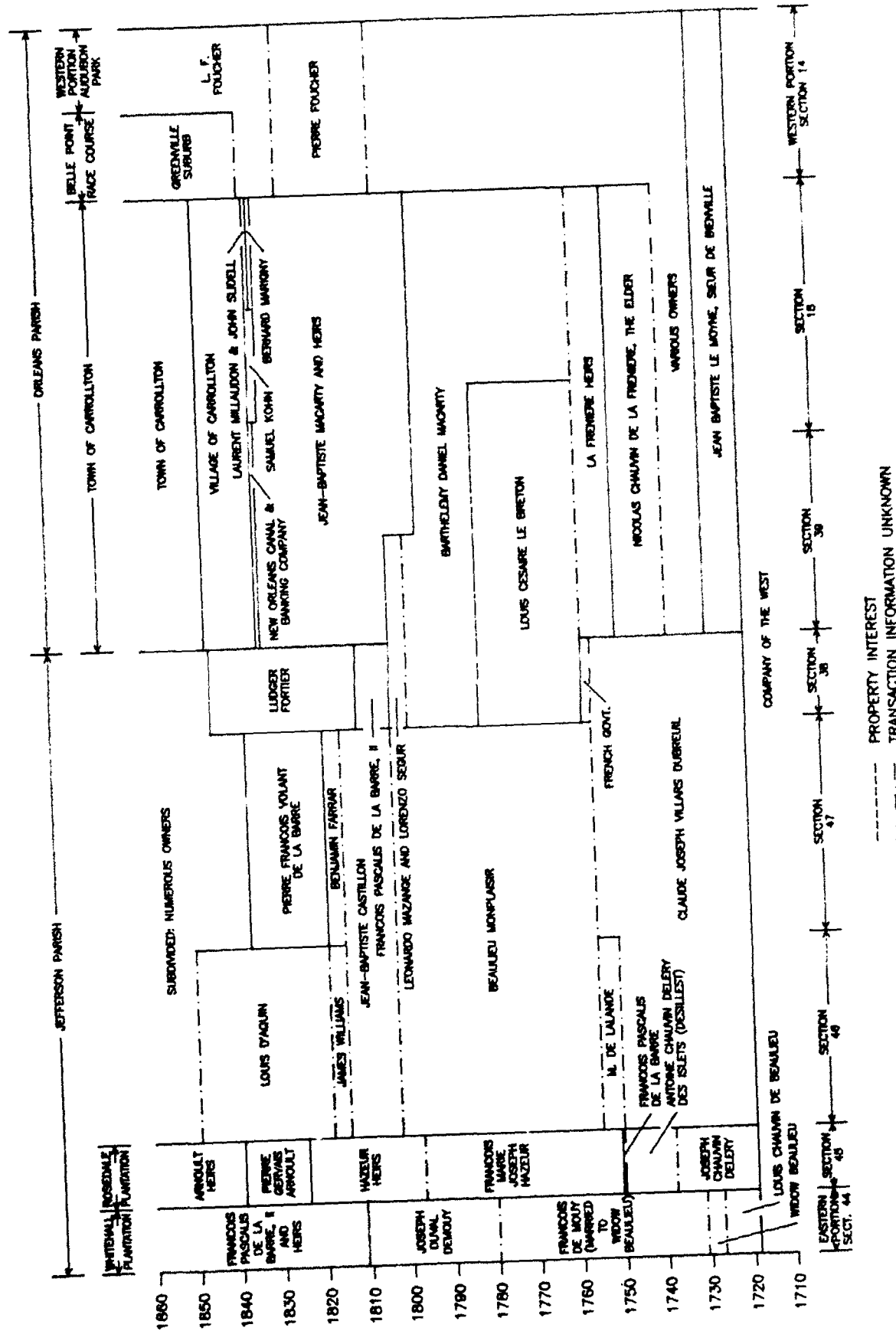


Figure 4. Schematic representation of the general land tenure history for the Carrollton Bend study reach, from concession grant to 1860 (Goodwin, et al. 1983; Bazou 1973; Reeves 1980; Swanson 1975).

Economic Development in the Project Area and Vicinity, 1728 - 1836

Agriculture and exportation provided the economic foundation of the project area and vicinity during this period. The fertile alluvial soil along the banks of the Mississippi supported successful plantations. Planters cultivated crops well-suited to the tropical climate. Indigo served as the primary cultigen, while rice, tobacco, wheat, beans, cotton, and corn also were grown (Swanson 1975:67). Initial settlers also exploited the local timber supply; lumber became a major export (Clark 1970:57). While agriculture and associated industries remained the dominant focus of Jefferson Parish, neighboring New Orleans served as a major center for trade and export. Products such as indigo, rice, tobacco, indigo, lumber, pitch, tar, and myrtle-wax found ready markets in New Orleans (Clark 1970:55).

During the later eighteenth century, agricultural patterns changed to meet the changing demands of the colony. As the profitability of indigo declined and the demand for processed sugar soared, the primary crops shifted from indigo to sugar. Cotton also emerged as a major agricultural product. Improvements in processing technology further spurred this alteration. During this period, an economical process of producing sugar from immature cane was developed, and the invention of the cotton gin allowed for the production of cotton on a larger scale (Goodwin et al. 1985:42). By the early nineteenth century, sugar emerged as the dominant agricultural effort. The labor, water access, and capital required for sugar cane cultivation and refining dictated that only owners of larger plantations could undertake the process (Goodwin et al. 1985:48).

Lumber production also adjusted to meet new governmental and commercial demands. In addition to the needs prompted by the construction of new houses and business establishments, the Cuban sugar trade initiated a significant market for wooden boxes (Goodwin et al. 1985:37). By the early nineteenth century, sawmills were constructed to process more timbers. At that time, the growing demand for building materials prompted the construction of brickyards (Goodwin et al. 1985:53).

Incursions of the River at Carrollton Bend and Nearby

Before the Macarty Plantation became the suburb of Carrollton, the Macarty's dwelling house disappeared with a cave-in along the banks of the river (Mahé 1976:15). From the eighteenth century to the present-day, the river has presented problems to urban planners. In 1816, the so-called Macarty crevasse (or break in the levee) occurred on the plantation where Carrollton is now situated. The crevasse flooded much of New Orleans until the breach was finally closed by sinking a vessel at the site. According to a Jefferson Parish historian, the Macarty Crevasse "... is said to have been responsible for raising the level of the land with deposition of silt in what is now uptown New Orleans, thus prompting real estate developments in the City of Lafayette and the faubourgs" (Swanson 1975:91). Another serious crevasse occurred in 1849 on the Tchoupitoulas coast but just above the project area. The so-called Sauvé Crevasse at Providence Plantation flooded much of the area of uptown New Orleans. The crevasse had no direct effect on the Carrollton settlement since most of that tiny community was located on higher ground close to the river. Nevertheless, the crevasse ruined the sugar crops of all the planters in the Tchoupitoulas section. A contemporary chronicler of the sugar crop estimated the loss along the east coast of the Mississippi River in Jefferson Parish to be "not less than 1200 hhds" or 600,000 pounds of sugar (Champomier 1849-1850:26). The crevasse also undoubtedly promoted the levee building in 1853, which required the destruction or removal of some of the earliest buildings in Carrollton (Mahé 1976:76-77).

Vanished Structures at the Macarty Plantation, 1803 - 1863.

According to a Carlos Trudeau map of 1803, a canal and a sawmill stood on the Macarty Plantation. A historian of Carrollton has argued that the canal occupied the site developed as Canal (later called

Carrollton) Avenue (Mahé 1976:12,25). The sawmill stood at the head of the canal by the river's edge at a site that appears to have been lost to the Mississippi River by 1853. An inventory of 1826 indicates that the plantation buildings included a sugar house, a master's house, storehouses, and slave cabins. The inventory also counted 21 horses, 5 mules, 83 oxen, 20 cows, 5 heifers, 17 calves, 40 hogs, and extensive agricultural equipment. No less than 110 slaves labored on the estate (Bezou 1973:72). While the house was lost to the river by 1834, another structure appears on early maps. The H-shaped building, its purpose unidentified, survived until 1863 when it was burned by Federal troops encamped in the area (Mahé 1976:14).

The de Boré Plantation, 1781 - 1834

Although just outside the project area, the plantation of Etienne de Boré has such historical significance that it requires mention. Boré acquired the property in 1781; there, in 1795, he successfully granulated sugar, an experiment usually credited with inaugurating the sugar cane industry of Louisiana. By 1834, D. F. Burthe had acquired the property; the Zimpel map of that year depicts the old plantation house and grounds. The site is now part of Audubon Park. No trace of the plantation remains (Wilson 1980:73-76).

The Development of Carrollton

Origin of the Name

In 1876, William H. Williams, a post Civil War surveyor and land developer, declared that the name Carrollton derived from General William Carroll, who commanded Kentucky troops at the Battle of New Orleans and supposedly camped on the Macarty Plantation in 1814 (Bezou 1973:71-72). Carroll subsequently became Governor of Tennessee and visited New Orleans in 1825, where he received a hero's welcome (Chase 1979:100).

At least one historian has argued that the name of the village honored Charles Carroll of Carrollton, the only Catholic and last surviving signer of the Declaration of Independence (Perilloux 1945:4-6). Since the earliest streets in the village honored American statesmen, the argument may have validity. Certainly Carroll's wealth and extreme fiscal conservatism would have appealed to the entrepreneurs who created Carrollton.

The Sale of Lots in Carrollton

In January 1832, the last of the Macarty heirs came of age and ratified the sale of the family plantation. Ownership of the property passed to three entrepreneurs and their banking company, who divided control as follows: the New Orleans Canal and Banking Company held 10/20th of the property; Samuel Kohn 5/20th; Laurent Millaudon 4/20th; and, John Slidell 1/20th. The new owners hired Charles F. Zimpel, a surveyor and engineer, to draw a plan dividing the acreage into squares. His completed plan created squares of 650 ft in depth and width. Two lots, each 325 x 650 ft, occupied each square (Perilloux 1945).

In the meantime, the entrepreneurs hired Isaac S. McCoy, a licensed auctioneer. On May 1, 1833, McCoy conducted a public auction at the New Exchange Coffee House in New Orleans in which lots in the village of Carrollton were offered for sale. The sale proved to be a financial success for the developers (Perilloux 1945).

The Railroad to Carrollton

No doubt orchestrated by the entrepreneurs who developed Carrollton, a group of railroad boosters held a public meeting in 1832 to urge a railroad between New Orleans and the fledgling village. In February 1833, several months before the Carrollton auction, the Louisiana legislature chartered the New Orleans and Carrollton Railroad. The railroad began laying tracks in 1834 and on September 26, 1835, began passenger service (Mahé 1976:26-40). By 1836, steam cars commuted between New Orleans and Carrollton every two hours, seven days a week (Swanson 1975:105).

The railroad built its depot near the juncture of Canal (Carrollton) and First (St. Charles). The notable Crescent City architects, James Gallier, Jr. and John Turpin, designed and built an elaborate Gothic revival addition to the depot in 1851. Cast iron was used in the construction, and the building contained a clock tower (Swanson 1975:105). The structure was demolished when the levee was expanded in 1891.

In the words of John Chase, the railroad in a single generation "transformed a rural countryside into the premier residential neighborhood of New Orleans" (Chase 1979:121). The railroad improved communication and stimulated business interaction between Carrollton and New Orleans, which contributed to the village's growth (Ledet 1938:235). Nevertheless, Carrollton remained a village in Jefferson Parish for many years. It was incorporated by the legislature in 1845 and became a city in 1859. Carrollton was annexed to the City of New Orleans on March 23, 1874 (Swanson 1975:106).

Carrollton Hotel and Gardens

In tandem with the railroad was the erection in 1835 of the Carrollton Hotel and Gardens, constructed to stimulate the village's economic growth (Ledet 1938:238). The project was successful in luring large numbers of city dwellers to the village on excursions (Swanson 1975:105). Fire destroyed the hotel in 1842, but the structure was rebuilt almost immediately due to its profitability (Ledet 1938:239). According to one historian:

The Carrollton hotel, the first resort hostelry opened in Jefferson, attracted a large clientele transported by the trains while horse fanciers rode to the Eclipse Course after 1838. For a fare of 37½ cents, city dwellers could and did indulge in shooting galleries, regattas, dances, bowling greens, cricket clubs, tenpin alleys, and card games, all available in Carrollton (Bezou 1973:73)

According to the Zimpel map of 1834, the Belle Point Race Course was already in operation near the river just below Lowerline Street when the suburb of Carrollton was created. The course attracted many tourists to the Carrollton resort.

The Carrollton hotel, which became known as Carrollton Gardens, had a long and successful operation. In 1879 a guide to New Orleans described a visit there:

The trip to Carrollton is deservedly one of the most popular excursions in the neighborhood of the city. Here are situated the Carrollton Gardens, which for many years have been a favorite resort with our people, and a place much admired by strangers The spacious walks are lined with the choicest flowers, whose bloom and fragrance are especially attractive to those who come from the North, where snow and ice greet the eye on every hand. Instead of snowballs, the visitor may obtain an exquisitely arranged bouquet or the

rarest of plants, and in place of sleet and ice, he will see a verdure most pleasing to the senses. Connected with the gardens there is a spacious building with large, airy and comfortable rooms . . . kept as a private family hotel, on the European plan, with a restaurant, where the most inviting meals, with all the substantials and delicacies afforded by our markets may be obtained . . . (Waldo 1879:24).

A steamboat landing in the vicinity of the hotel provided a disembarkation point for hotel visitors. However, guests generally returned to the city by rail (Ledet 1938:239-240). The hotel and gardens survived until 1891 when the new levee constructed in that year required its demolition (Mahé 1976:217).

Samuel Short, An Early Settler in Carrollton

Samuel Short built the first residence in Carrollton at a site between Canal Street (the present Carrollton Avenue) and Short Street. Built close to the river, Short's house was lost to a cave-in a few years after its erection. Short also built the first lumber and shingle mill in Carrollton on the corner of Canal and First (today's Carrollton and St. Charles). Short developed the area bounded by the river, First Street, Canal, and Washington. Unfortunately, he lost everything in the Panic of 1837 (Mahé 1976:71-74).

The Lumber Industry in Carrollton

Although Samuel Short disappeared after the Panic of 1837, often enterprising men entered into the lumber trade in Carrollton. Wood became the focus of industry in Carrollton for many years. Frederick A. Raslar was the so-called father of the woodyard business in the village. He established a woodyard and sawmill at the head of Monroe Street in the upper section of Carrollton. Raslar had the advantage of selecting the first of the free, floating timber rounding the river bend. The batture along his property contained a large pool of water having two outlets to the river. Logs collected in this basin supplied the sawmills behind the levee. Nevertheless, the pool on the batture created problems for the neighborhood. In 1853, a new levee was built, and Raslar was required to move his business. He relocated his lumber business to Jefferson Street (Ledet 1937; Mahé 1976:76-77). Another sawmill stood at the corner of Carrollton and Commercial between city blocks 51 and 68.

The Jefferson and Lake Pontchartrain Railroad

The success of the New Orleans and Carrollton Railroad seems to have inspired emulation. In 1851, work began on a second railroad, the Jefferson and Lake Pontchartrain. Completed in 1853, it ran from Carrollton along the boundary between Orleans and Jefferson parishes to the lake. The president of the new railroad, G. Currie Duncan, successfully petitioned the Carrollton Council to set aside a portion of the levee between the lower line of Canal (Carrollton) Avenue and the upper line of Jefferson (Joliet) Street for steamboats only. As a result, the Jefferson and Lake Pontchartrain had a landing on the river for transporting passengers to the Carrollton Hotel and for moving cargo to and from the lake. The railroad continued in operation until the Civil War. The line was abandoned in 1864 for lack of profitability (Mahé 1976:114-116; Swanson 1975:98).

Steamboat Landing, Ferries, and Waterborne Commerce

A popular outing for New Orleanians was to take the steamer to Carrollton, spend a few hours at the Carrollton Gardens, and return to the Crescent City by rail. Beginning in 1845, a ferry also operated

from Carrollton across the Mississippi; its landing was situated between Madison (Dante) and Jefferson (Joliet) Streets. Originally just a skiff, the ferry became steam-powered in 1868. In the meantime, flatboats landed at the lumber mills operating on the batture or behind the levee. On the eve of the Civil War, brigs, schooners, sloops, flatboats, and keelboats could be found tied up along the Carrollton waterfront.

In 1871, soon after the close of the Civil War, the city of Carrollton erected a wharf at the head of Madison (Dante) Street. The structure was 250 ft long and cost \$8246.19. It was constructed by the firm of Drumm and Hardy. With the expansion of uptown New Orleans, residents of the Garden District forced the removal of slaughter houses from the suburb of Lafayette. As a consequence, a few of the slaughter houses relocated in Carrollton in an area bounded by the river, Clinton, Lowerline, and Ann (Garfield). A stock landing occupied the batture between Clinton and Lowerline. Numerous flatboats utilized the landing (Mahé 1976:188-190).

Levee Street

Levee Street, a nineteenth century thoroughfare that has now disappeared completely, served until 1891 as the major commercial street in Carrollton. In 1845, the newly incorporated Carrollton City Council designated Levee as "an important public street;" not until the following year, however, was the thoroughfare opened. Levee ran near the lumber industries and intersected all the streets running to the rear of the town.

Before 1853, businesses flanked both sides of Levee Street. Nevertheless, the construction of a new levee in 1853 required the demolition or removal of all structures on the river side. Levee continued to prosper thereafter. The main commercial establishments were between Madison (Dante) and Cambronne. In 1883, only five buildings along the street were constructed of brick. Mahé, a Carrollton historian, has presented a detailed description of buildings along Levee Street (Mahé 1976:123-125). In 1891, the encroachment of the river required the removal of the remaining businesses on the land side of Levee Street. The railroad station, the Carrollton Hotel, and other important structures associated with the early history of Carrollton were thus lost (Mahé 1976:127, 218).

The Civil War in the Project Area

Although no military engagements of any consequence took place in the project area during the Civil War, the vicinity assumed importance in defending the upriver approaches to New Orleans. The Confederates began to build fortifications on the east side of the Mississippi River in Jefferson Parish on August 22, 1861; the works were situated along the present route of Causeway Boulevard. In September 1861, the New Orleans *Daily Picayune* described the parapet as nine feet high with a moat thirty feet wide and six feet in depth. On March 21, 1862, the fortifications were named Fort John Morgan. After the capture of New Orleans, Federal forces changed the name to Camp Parapet and used the fortifications for both defense and as an occupation garrison. The presence of large numbers of African American soldiers garrisoned at Camp Parapet makes the site noteworthy for African American history.

Construction of Fort Morgan

Although Confederate military officials considered New Orleans amply defended by two forts located on the Mississippi River south of New Orleans, they could not exclude the possibility of an attack from the north. To defend the northern approaches to the city, they constructed a fortified line about six miles above New Orleans at Carrollton, Louisiana. The main line of defenses ran in a zig-zag pattern from the edge of the Mississippi River to a nearby swamp. The two ends were anchored by redoubts, with the principal redoubt near the Mississippi River. The works stood nine feet high and were twenty-seven feet thick at the

base. A seven to nine foot deep ditch fronted the earthworks (Casey 1983:145-147, Green 1982:290; *Harpers Weekly* May 24, 1862; RG 77, Drawer 133, Sheet 77). Newspapers called the line of fortifications the Victor Smith line in honor of the son of Major M. L. Smith, C.S.A., who supervised the operations. On March 21, 1862, Major General M. Lovell named the fortifications Fort John Morgan in honor of the Confederate bushwacker in Kentucky.

For armament, the Confederates mounted an impressive array of artillery. The heavy guns consisted of nine 42-pound cannon, two 32-pound cannon, nine 24-pound cannon, and four 18-pound cannon. The fortifications proved irrelevant to the defense of New Orleans. When a Federal expedition led by Union Flag Officer David Glasgow Farragut captured New Orleans (from downriver) in April 1862, Union troops took over Fort Morgan. The Rebels had no time to remove their guns; according to one account they threw 15 of them in the river. Other reports indicate that the Confederates spiked the guns and burned the carriages.

Union Occupation of Fort Parapet

Following the capture of New Orleans, the Federals immediately began improving the fortifications, renaming the site Fort Parapet. Abandoned Confederate guns were repaired and placed on the ramparts. The portion of land behind the parapets was used for encampments of Union soldiers (Casey 1983:145-145). An 1863 map shows the main redoubt to be on the Mississippi River levee with a camp ground next to it. The fortifications ran in a zig-zag line towards the lake. The powder magazine of the main redoubt still survives at the end of Arlington Street. Through the efforts of historic preservationists in Jefferson Parish, the structure was placed in May 1977 on the National Register (Casey 1983:145-147).

The exact number of Federal troops occupying Camp Parapet varied with time, and regiments were rotated in and out. The post returns for February 1863 show five infantry regiments and two artillery batteries, totaling 2,611 soldiers ("Returns of Posts Camps and Stations" National Archives Microform M 617, Roll 898). Unfortunately, the post returns for most of the time prior to 1865 are missing. Regimental histories of the 15th and 16th New Hampshire Volunteers record that soldiers moved within the vicinity during the winter of 1862/1863 (McGregor 1900:222-224; Townsend 1897:52-70). The first Union commander was the Vermont General John Phelps, but he resigned following a quarrel with General Butler over the organization of black soldiers (Cornish 1956:62).

For the average soldier, duty at Camp Parapet was one of constant drudgery, as indicated in the account of the 15th New Hampshire regiment:

Here we settled into a daily routine of camp life, with seldom anything to break the monotony. Daily company, regimental, and brigade drills, Neal Dow, brigadier-general commanding. How many and many times has our regiment marched in line and column, formed hollow squares, formed from column into line of battle, and from line back to column; by fours, by platoons, by companies; and charged quick and double quick; fixed bayonets and unfixed bayonets, and fired with blank cartridges under that burning sun ... until the whole could move as if by instinct like one vast machine (McGregor 1900:223).

Problems of disease and death soon overshadowed the monotony of camp life. Camp Parapet was located on low ground, near the swamp. The combination of living in tents on the muddy grounds and the exposure to southern diseases caused heavy casualties among the soldiers, especially during their first months. One officer from the 15th New Hampshire wrote home that "A malarial fever carried many boys to their graves, and one could almost anytime hear the band playing a funeral dirge as the body was borne to its last resting place" (McGregor 1900:224). The regimental history of the 15th New Hampshire described

the effects of fever upon the patient. "A man would be stricken suddenly with these fevers, and in an half hour his eyes would turn yellow, and vomiting spells would ensue; the skin would become hot so as to burn the hand like a gun barrel. . . Unless relief was afforded the victim would die within a day's time" (McGregor 1900:216; Swanson 1975:130).

To distract themselves from the miserable conditions, the soldiers turned to alcohol. One rainy night in September 1862, the garrison moved to the ramparts because of a false alarm; a captain realized that the greater part of his men were drunk (Green 1982:300). This incident coincided with a payday. From January 1863 to May 1863, the famous Maine temperance reformer Neal Dow commanded the post. Dow had drafted the most stringent prohibition law in antebellum America, which was generally called the Maine Law. He presumably did his best to prevent the consumption of alcohol at Camp Parapet (Dow 1898:687).

Employment of African American Soldiers at Camp Parapet

The history of Camp Parapet also is noteworthy for its part in the story of African Americans in the military. One of the first attempts to organize black units occurred at Camp Parapet during the summer of 1862. Later in the course of the war, black regiments formed the majority of the garrison at Camp Parapet. One of the units to serve at Camp Parapet, the Third Battalion, 11th United States Colored Artillery, differed from most other black regiments in that it originated in Rhode Island among northern African Americans. The importance of these events are outlined below.

Shortly after the Union occupation of Camp Parapet, fugitive slaves entered the camp. In 1862, Lincoln's Emancipation Proclamation was not yet in effect, so these people still were considered slaves under Federal law. Nonetheless, Major General Benjamin F. Butler previously had established a "contraband of war" doctrine which could justify the sheltering of fugitives at Camp Parapet.

The camp commander, Brigadier General John Phelps, was an abolitionist from Vermont who went further than Butler wished in sheltering fugitive slaves. Butler issued an order excluding unemployed African Americans from the military camps, which Phelps ignored. He sheltered blacks who came into the camp, and used able-bodied workers to repair the fortifications (Green 1982:293). The issue of fugitive slaves at Camp Parapet eventually reached the War Department and President. In July 1862, the President supported Phelps's decision to provide shelter for African Americans at the post. The Secretary of War, Edward Stanton, wrote to General Butler that,

He [Lincoln] is of opinion that, under the law of Congress, they cannot be sent back to their masters; that in common humanity they must not be permitted to suffer for want of food, shelter or other necessities of life: that to this end, they should be provided for by the Quartermaster's and Commissary's Departments; and that those who are capable of labor should be set to work and paid reasonable wages.

In directing this to be done, the President does not mean, at present, to settle any general rule in respect to slaves or slavery, but simply to provide for the particular case under the circumstances in which it is now presented.

Butler complained to his wife that the President's support of Phelps would result in a slave insurrection (Butler 1917:2:41-42, 109).

Phelps would soon create even greater consternation for Butler. On 30 July 1862, he wrote to Butler from Camp Parapet requesting arms and accoutrements for three black regiments that he was organizing.

He argued that his men were dying at the rate of two or three per day, and that regiments of fugitive slaves were necessary to find sufficient soldiers. Butler responded by adamantly refusing permission to arm fugitive slaves, pointing out that the Federal government rejected a similar request in captured islands on the Atlantic coast. He directed that Phelps continue to employ African Americans in repairing the earthworks and in cutting trees surrounding the camp. After a bitter exchange of notes, Phelps resigned in protest of Butler's policies (Butler 1917:2: 125-127, 142-146; Butler 1892:488-490; Cornish 1956:58-62).

Shortly afterwards, on August 22, Butler organized one of the first African Americans regiments in the Army. This regiment consisted of New Orleans free-born blacks, not fugitive slaves. After the Emancipation Proclamation became effective in January 1863, the Union Army enlisted black soldiers, both free-born and freedmen, in large numbers. Butler's successor, Nathaniel Banks, organized African Americans regiments into the *Corps d'Afrique*.

The next record of black troops at Camp Parapet appear in the post returns for Camp Parapet beginning in June 1865. These records indicate that by this date, the garrison complement at Camp Parapet consisted of three African American regiments: the 87th US Colored Infantry, the 77th US Colored Infantry, and the Third Battalion 11th US Colored Artillery (Heavy) ("Returns of Posts, Camps & Stations" Microform M 617, Roll 898).

The regimental books of the 77th Infantry are not available at the National Archives. The records of the 87th Infantry indicate that the soldiers were freedmen recruited in Louisiana (RG 94, Regimental Books, 87th US Colored Infantry, Descriptive Book). The regiment served in Texas before moving to Camp Parapet in May or June 1865. Once at Camp Parapet, the soldiers settled into garrison life similar to their white counterparts. The daily routine was dominated by morning and afternoon drills followed by an evening parade. Some soldiers performed guard mount duties, while others attended to their weapons and equipment (RG 94, Regimental Books, 87th US Colored Infantry, Orders Book, especially General Orders No. 10).

The 11th US Colored Artillery (Heavy) had a notably different organizational history from other African American regiments of the Civil War. The regiment was recruited in Rhode Island among northern blacks beginning in September 1863. The regiment originally was a state volunteer regiment, designated the 14th Rhode Island Heavy Artillery (Colored) (Chenery 1898:2-8). The regimental books indicate that soldiers were born throughout the northeastern states, with a few southern-born blacks also joining the regiment (RG 94, Regimental Books, 11th US Colored Artillery, Descriptive Book).

After training in Rhode Island, the regiment moved to the Department of the Gulf in February 1864. In May of 1864, the regiment was redesignated the 8th United States Colored Artillery. The final reorganization occurred at the end of June 1864 when the regiment was redesignated the 11th US Colored Artillery (Heavy). The First Battalion was located at Fort Jackson, on the Mississippi south of New Orleans. The Second Battalion originally was located at the town of Plaquemine (between Baton Rouge and New Orleans), but later moved to Fort Butler, near Donaldsonville. The Third Battalion, under the Command of Lieutenant Colonel Nelson Vail, assumed responsibility for Camp Parapet.

Once they settled in Camp Parapet, the soldiers of the Third Battalion assumed the same monotonous routine that characterized garrison life for white soldiers. Morning and afternoon drills dominated the daily routine. Occasionally drill was discontinued so that the soldiers could repair the fortifications or perform other necessary labor (RG 94, Regimental Books 11th US Colored Artillery, Orders Book, Orders Book, and Letter Book). The commander established evening schools for the officer and non-commissioned officers (Chenery 1898:106). Even after the war had ended, soldiers continued to perform duties in town as a provost guard (RG 94, Regimental Books, 11th US Colored Artillery, Letter Book, Third Battalion).

The pattern of disease and death that characterized camp life throughout the Civil War also affected these soldiers. Evidently previous regiments had constructed wooden shelters, which were occupied by the 11th Artillery soldiers. Although these shelters were an improvement over tents, soldiers still suffered severely from the unhealthy camp conditions. Funerals were so common that the battalion commander ordered that funeral music be discontinued because the constant sound of the "dead march" was too depressing (Chenery 1898:45, 107, 105).

In September 1865, the regiment was order disbanded. Its three battalions were concentrated at Camp Parapet, prior to final transportation back to Rhode Island. The entire regiment assembled for a final dress parade of nearly 1,400 men at the camp. Yet 500 men were absent; they either had died or received medical discharges while in service (Chenery 1898:146).

The East Bank of the River above Carrollton

Residential, industrial, and commercial development did not occur along the east bank above Carrollton until well into the twentieth century. Prior to that time, the area remained agricultural (Thoede 1976:116).

Sugar Planting Along the East Bank

The Sauv  Crevasse of 1849 severely affected various members of the Arnoult family, who had occupied the project area since 1825 (Figure 4). The 1850 agricultural census documented that the Arnoult Brothers owned 900 acres, 400 of which were improved. The value of their property was given as \$30,000.00. Livestock included 3 horses, 28 mules, 8 milch cows, 35 oxen, and 10 other cattle valued at \$1,200.00. They produced 12,000 bushels of corn, 140 tons of hay, 300 1000-pound hogsheads of cane sugar, and 12,000 gallons of molasses. By 1858, they had abandoned sugar production altogether.

In 1870, when T. and J. Arnouldt [sic] were listed separately in the agricultural census, their estates were greatly reduced. T. Arnoult owned 15 improved acres and no unimproved land. His farm was valued at \$10,000.00, and he paid \$1,200.00 in wages for the year 1869 - 1870. Livestock included two horses, three mules, and two milch [sic] cows, all valued at \$500.00. He produced 8,000 bushels of corn, 14 bushels of Irish potatoes, and 100 bushels of sweet potatoes; all products from the farm had a total value of \$2,000.00. J. Arnouldt [sic] owned 45 improved acres and 200 unimproved acres. His property was valued at \$11,500.00. Arnouldt paid \$300.00 in wages for the year 1869 - 1870. Livestock on the farm included one horse, three mules, and three milch [sic] cows valued at \$250.00. J. Arnoult produced 600 bushels of corn, 350 bushels of Irish potatoes, and 200 bushels of sweet potatoes; all farm produce had a total value of \$2,000.00.

In 1858, only members of the De La Barre or LaBarre family continued to produce sugar in the project area. The *Statement of the Sugar Crop* for 1859 indicates that P. L. La Barre and F. La Barre together harvested 170 hogsheads. In 1857, P. L. La Barre built a mansion at Whitehall, just outside the project. The project area, nevertheless, includes much of his agricultural holdings. In 1860, he held 56 slaves and valued his real property at \$35,000.00, his personal property at \$65,000.00. In 1860, he produced 65 1,000-pound hogsheads of sugar and 11,000 gallons of molasses (Menn 1963:255-256).

After the Civil War, the La Barres still tried to produce sugar at Whitehall. The 1870 agricultural census lists F. P. La Barre and Company of Jefferson Parish as owning 1,200 acres, 400 of which were improved. The plantation was valued at \$30,000.00. Livestock included 10 horses, 16 mules, 10 milch [sic] cows, 10 working oxen, and 12 other cattle, all valued at \$1,000.00. The company produced 3,000 bushels of corn, 1,200 bushels of Irish potatoes, 900 bushels of sweet potatoes, 60 tons of hay, 60 hogsheads (at

1,000 pounds each) of cane sugar, and 2,400 gallons of molasses. D. La Barre, also of Jefferson Parish, was listed in the census individually as owner of 400 acres, 100 of them improved. He paid \$300.00 in wages. Livestock included three horses, four mules, and one milch [sic] cow, all valued at \$900.00. He grew 700 bushels of corn, 300 bushels of Irish potatoes, 300 bushels of sweet potatoes, but no sugar cane. The total value of his farm products was \$1,800.00. By the 1880s, the La Barres had given up the effort to grow sugar cane (Bouchereau 1875:34, 1876:77, 1881:10, 1889:51). They were the last major sugar producers in the project area.

A directory of landings along the Mississippi River in 1881 lists Carrollton, Camp Parapet (which in the postbellum era became briefly a settlement), Charles Hodges, and Whitehall (the La Barre plantation), in the project area (Cayton 1881:17-35). Hodges' primary agricultural operations were located at the site of the former Kenner sugar plantations, upriver from the project area.

Other Developments Along the East Bank

Just above Monticello Avenue, there developed during the mid-nineteenth century a subdivision known as New Carrollton. It occupied a small area, two blocks wide by four blocks deep. An 1894 Mississippi River Commission map shows 59 buildings in the area (Swanson 1975:107).

During the middle of the nineteenth century, the settlement took the name of John Hoe or Hoey, who operated a brickyard with three kilns at the site. He also manufactured saddle and harnesses as well as wheelbarrows at the site (Swanson 1975:107).

In the latter part of the nineteenth century, the area just above the parish line and now occupied by Ochsner Hospital was known as Southport. A steamship wharf was located there in 1894 and various railroad spurs provided connections to the major lines (Swanson 1975:107).

Additional developments such as Oakland, Harlem, and Shrewsbury appeared during the mid-nineteenth century. These settlements occupied an area two blocks wide by 77 blocks deep. However, the areas apparently were not fully developed until the twentieth century (Swanson 1975:107).

Economic Development in the Project Area, 1836 - Twentieth Century

The Jefferson Parish economy on the east side of the Mississippi River remained predominantly agricultural through the Civil War, with sugar and cotton remaining the dominant crops (Goodwin et al. 1985:47-53; Huber 1991:8). The economy of the Carrollton area changed as the village evolved from a region of agricultural development into a vacation spot and bedroom community for New Orleans (Ledet 1938:23).

As Jefferson Parish focused on agriculture, the project area within Orleans Parish experienced the encroachment of the City of New Orleans; as mentioned above, the City of Carrollton became a part of the city in 1874 (Swanson 1975:106). New Orleans continued to function as a major exporting point for local goods until the Civil War; during this period, the port city was second in importance only to New York. Cotton remained a major export (Huber 1991:8). Other commercial enterprises prospered in the city, including retail shops for clothing, millinery, imported glass and tableware. Offices and warehouses for commodities such as cotton and sugar also served as a vital economic influence in the area (Huber 1991:7).

The Civil War stifled economic development in New Orleans. Rather than export goods produced on their plantations, many landowners utilized their agricultural products for subsistence purposes; other

materials were commandeered by Union or Confederate troops. This decline in marketable goods produced a debilitating effect on the port of New Orleans and associated industries (Beavers et al. 1980:31). Following the war, the city slowly recovered and resumed shipping activities. Efforts to deepen the city's port improved its potential to meet and surpass former levels of trade (Beavers et al. 1980:31).

The agricultural component of the area's economy also shifted after the Civil War, as the cotton market plummeted and sugar slowly regained its importance. Although sugar production experienced a slowdown during the 1870s, production of the crop increased significantly through the beginning of the twentieth century. Technological advances in sugar production and a reorientation of the organizational system from family management to modern corporate industrial management contributed to this increase (Goodwin et al. 1985:57,61).

The Cotton Centennial Exposition of 1884-1885 further signaled New Orleans' return to commercial prominence (Huber 1991:11). During the late nineteenth century and into the twentieth century, industry emerged in the city and played an increasing vital role in the local economy (Beavers et al. 1980:32). As the twentieth century progressed in Jefferson Parish, truck farming rapidly gained prominence in agriculture. This small farm vegetable production gradually replaced sugar cultivation and processing; however, rice and cotton remained viable crops (Goodwin et al. 1985:66; Swanson 1975:98). In addition to agriculture, the exploitation of natural resources such as lumber and fur bolstered the local economy (Goodwin et al. 1985:67-71).

Carrollton Bend Revetment

The Federal Government in 1882 approved funds for the Carrollton Bend Revetment as part of major improvements in New Orleans harbor. In 1891, the Corps of Engineers constructed three new dikes at Carrollton Bend. The construction cost \$78,688.00 (U.S. Army Corps of Engineers 1987). Levee construction in 1853 previously had destroyed the river side of Levee Street in Carrollton; the construction program of 1891 demolished the remaining buildings on the land side, including the Gallier-designed railroad depot and the Carrollton Hotel and Gardens.

In 1892, the Corps built two more dikes measuring 300 ft and costing \$27,860.00. The following year mats measuring 1,200 linear ft were installed. The Corps utilized only willow framed medius on the project for many years; by 1925, 14,905 linear ft of new footage had been installed at the Carrollton Bend Revetment. The construction cost \$649,351.00 (U.S. Army Corps of Engineers 1987).

Not until 1932 did the Corps begin utilizing articulated concrete mating at the Carrollton Bend Revetment. Thereafter, asphalt mating was employed until 1967, when articulated concrete mating, 1770 squares, was once more installed. In 1973, 1,063 squares of articulated concrete mating again were utilized. In the interim, minor repairs were made with stone (U.S. Army Corps of Engineers 1987).

The Mississippi River Commission Map, 1921

By 1921, Carrollton Bend had developed into its modern configuration. The nineteenth century sites associated with the early development of Carrollton had disappeared. Of the wharves and landings of Carrollton, only the Walnut Street Ferry's pier and a landing at the Standard Oil Company remained. Wharves still existed just below Southport and at the facility of the American Creosote Company. Railroad tracks blanketed the area. These railroads were used for shipping freight rather than for fostering excursions from New Orleans.

The Potential for Archeological Resources within the Project Area

The potential for encountering significant archeological resources within the project area is dependent on several interrelated factors, including lateral migration of the Mississippi River, distribution of historic development, and disturbances to archeological resources caused by levee and revetment construction, and modern land-use. As discussed in Chapter II, comparison of the 1893 and 1921 Mississippi River Commission Charts 75 and 76 with the modern topographic quadrangle illustrates the extent that lateral migration has effected in the project area (Figure 3). Upriver from the existing Carrollton Bend Revetment, the batture has aggraded throughout the late nineteenth and twentieth centuries. With the exception of 30 to 50 m (98.4 to 164 ft) situated adjacent to the modern levee, the entire batture postdates ca. 1893. Historic maps illustrate that the batture was undeveloped and covered with river willow. Any substantive archeological resources in the area would lie underneath or landward from the modern artificial levee.

On the other hand, the downriver portion of the project area, corresponding with the existing Carrollton Bend Revetment, formed a cutting bank throughout the nineteenth century. Historic references describe various structures, such as the Macarty Plantation big house and the Samuel Short residence, being destroyed by riverine cutting early in the nineteenth century. This riverine cutting necessitated two major nineteenth century levee setbacks. In 1853, a levee setback necessitated destruction of numerous commercial businesses located along the riverside of Levee Street, in Carrollton. Riverfront businesses also were moved or destroyed at that time, including the sawmills of Frederick Raslar. A second levee setback, in 1891, destroyed Levee Street and resulted in removal of the buildings located on the land side of the road. These buildings included numerous commercial structures such as the elaborate Gothic revival railroad depot, the New Orleans and Carrollton Railroad depot, and the popular Carrollton Hotel and Gardens. While the initial revetment at Carrollton was constructed as early as 1893, the river continued to cut well into the 1920s (Figure 3). Since that time, the Carrollton Bend Revetment has stabilized the bankline, and riverine cutting has been minimal.

Levee and revetment constructions, construction of the New Orleans Public Belt Railroad lines that lie adjacent to the levee (Figure 1), and modern development of the area have damaged or destroyed numerous potentially significant archeological resources that originally were located along the river. Since few historic maps are available that depict the locations of the individual nineteenth and early twentieth century structures and businesses that were destroyed, anticipated archeological locations of most of these resources cannot be ascertained without extensive property-specific research; this lies beyond the scope of this study.

Examination of several historic maps, including the 1834 Charles Zimpel map and the 1893 and 1921 Mississippi River Commission Charts, provides preliminary information about anticipated sites in the project area. Throughout much of the nineteenth century, Levee Street, which extended along the waterfront in Carrollton, was lined with businesses and residences. As mentioned above, the riverside structures along Levee Street were destroyed during the 1853 levee setback, while the street itself and the land side structures were razed during the 1891 levee setback. The former Levee Street lies underneath the modern levee; remains of associated buildings are anticipated underneath the levee and the adjacent railroad lines, and on the batture adjacent to the levee. Since archeological remains associated with the structures destroyed in 1853 have been impacted by two levee setbacks (1853 and 1891) and subsequent levee enlargements, and the structures razed in 1891 have been impacted by the 1891 levee construction, subsequent levee enlargements, and construction of the railroad lines, it is anticipated that most of the associated archeological deposits will be damaged extensively or destroyed.

Waterfront resources also have been impacted extensively by post-depositional natural and cultural events. Until the 1920s, the river continued to cut into the bankline, gradually destroying nineteenth century resources located near the river. In addition, late nineteenth and twentieth century revetment construction

necessitated the grading of the bankline, further impacting potential cultural resources. These resources that apparently were destroyed included various residential buildings, as well as numerous commercial businesses such as sawmills and wharves. For example, a steamship wharf located at Southport in the 1890s was destroyed by riverine cutting prior to the 1920s. However, remains associated with some early twentieth century riverine businesses may survive within the project area, including wharf remains associated with the American Creosote Company, near Southport and a second unnamed wharf near Southport, remains of Standard Oil Company structures on the batture near the foot of Carrollton, and Walnut Street Ferry remains on the batture at the foot of Walnut Street.

Nineteenth and early twentieth century archeological deposits may underlie the U.S. Army Corps of Engineers, New Orleans District offices. Remains associated with the 1853 levee setback may extend through the entire reservation, in the vicinity of the main levee alignment. In addition, remains associated with riverine businesses such as sawmills may occur within the reservation; precise locations of these anticipated businesses remain unclear. By 1893, a levee passed through the reservation area, and most of the reservation apparently was not developed. The reservation property was acquired by the Federal Government in the early twentieth century, and the initial Corps of Engineers Depot was established. It was built on a considerable amount of fill to raise the facility above annual flood waters. By 1921, several large buildings and a railroad spur were constructed within the reservation. These initial constructions probably damaged archeological resources located within the area. However, the fill upon which the modern facility is built has protected any surviving nineteenth century resources from most modern construction. Constructions that are confined to the fill deposit will not substantively damage archeological resources that have survived underneath it.

CHAPTER V

PREVIOUS INVESTIGATIONS

Previous Cultural Resources Surveys in the Vicinity of the Project Area

Several previous cultural resources surveys have been performed within the area of the Mississippi River natural levee between Harahan, Louisiana and the Harvey Canal (River Miles 108 - 98). In 1974, Shenkel (1974) conducted preliminary excavations at Elmwood Plantation (16JE138) to obtain information about the age of the big house, and to assess the archeological potential of the plantation remains. One excavation unit, of unspecified size, was placed within the front gallery. Underlying the modern concrete slab were four strata. A 10 to 11 cm thick brick rubble and mortar floor, edged with a row of bricks, was uncovered directly underneath the slab. This rubble floor rested on a 7 to 8 cm thick clay fill deposit, which capped a 2 cm thick lens of brick fragments. The lens rested on consolidated undisturbed natural levee clay. Very few artifacts were recovered from the unit, most of which were consistent with either eighteenth or nineteenth century dates of deposition. A second unit, measuring 1 x 2 m, was placed 12 m behind the house. Remnants of a brick-bordered walkway filled with brick and shell fragments also were uncovered. Eighteenth and nineteenth century materials were recovered from the walkway, including French faience, Iberian jar fragments, and transfer printed earthenware. Finally, limited probing around the site located four brick piers at 75 m from the rear gallery, and a concentration of bricks at 90 m from the rear gallery. Based on an historic reference to a building at Elmwood Plantation in 1768, and the dearth of evidence of a prior structure at the big house, Shenkel (1974) concluded that the plantation house was erected prior to that date. Additional excavations were recommended to provide more complete information about the house, the plantation, and eighteenth century plantation life.

Additional testing at Elmwood Plantation was undertaken by R. Christopher Goodwin & Associates, Inc., in 1982 (Goodwin et al. 1983). Extensive research was performed documenting the historic development of the plantation. Archeological testing included a proton magnetometer survey and excavation of ten units and nine backhoe trenches. Based on the collected data, it appears that the plantation house was built ca. 1810, considerably later than previously thought. Archeological deposits exhibited a high degree of archeological integrity. Analyses of recovered materials provided information about nineteenth century living conditions on the plantation, and the distribution of several plantation activity areas. The site was characterized as a significant cultural resource because of its documented research potential regarding antebellum plantation life in southeastern Louisiana (Goodwin et al. 1983).

In 1985 and 1986, R. Christopher Goodwin & Associates, Inc. (Goodwin et al. 1986) surveyed a series of planned U.S. Army Corps of Engineers, New Orleans District, levee construction items located along the west bank of the Mississippi River, between Waggaman and Gretna, Louisiana. Project area remains associated with Avondale Plantation (16JE143) and Magnolia Lane (16JE156) were identified and tested during survey. The project area portions of these sites were tested through both shovel testing and unit excavation. Based on collected data, those portions of the sites which fell within planned construction easements exhibited considerable modern disturbance, and lacked substantive archeological integrity. Eighteen standing structures also were recorded and evaluated during survey; none possessed the qualities of significance, as defined by the National Register of Historic Places criteria of significance (36 CFR 60.4[a-d]). No additional archeological testing of the project areas was recommended.

In 1988, R. Christopher Goodwin & Associates, Inc. (Goodwin et al. 1990) surveyed the planned Gretna Phase II Levee Enlargement project for the U.S. Army Corps of Engineers, New Orleans District. The survey area extended along the west bank of the Mississippi River from Marrero, Louisiana, downriver to the Jefferson - Orleans Parish line. One site, 16JE207, was recorded upriver from the Harvey Canal. This site

contained a small, linear brick structure which may have been associated with a nineteenth century drainage, and an apparent brick rubble road. Historic documentation suggested that the site was associated with Bobb's Brickyard (1850s - 1860s), and with the gardens and plantation structures of N. N. Destrehan (1820s - 1840s). Additional testing was recommended to record the brick structure, and to evaluate the archeological significance of the site.

Two additional studies were conducted in the vicinity of the project reach. Rivet (1977) surveyed a railroad interchange at Shrewsbury Road prior to track removal and interchange relocation, i.e., approximately 1.5 km (0.95 mi) north of the current project area. Finally, Beavers (1983) examined numerous small parcels between 1980 and 1983 during an extended feasibility study of 13 proposed Jefferson Parish sewerage treatment facilities. These parcels were scattered throughout the northern portion of Jefferson Parish, and included parcels near Avondale, Bridge City, and Westwego, Louisiana. No substantive archeological deposits were located during either of these studies.

Previously Recorded Archeological Sites and National Register Properties near the Project Area

Six previously recorded archeological sites are located on the Mississippi River natural levee near the project area (Table 1). Four of these sites are associated with nineteenth and early twentieth century plantations, including Elmwood Plantation (16JE138), Seven Oaks Plantation (16JE139), Avondale Plantation (16JE143), and Magnolia Lane (16JE156). The archeological deposits associated with Seven Oaks Plantation have been damaged extensively by modern construction, including construction of a tank farm; the site does not represent a significant cultural resource. As discussed above, testing at Elmwood Plantation demonstrated that the site does represent a potentially significant cultural resource. While tested less extensively than Elmwood, Avondale Plantation may contain important in situ cultural deposits. Both of these sites appear to possess the qualities of significance as defined by the National Register of Historic Places criteria (36 C.F.R. 60.4 [a-d]). Magnolia Lane is listed on the National Register. While those archeological resources located near the levee do not possess the qualities of significance as defined by National Register of Historic Places criteria (Goodwin et al. 1986), those resources located near the plantation house have not been evaluated.

Two additional sites are located in the vicinity of the project area. Site 16JE207 contains an apparent brick drainage feature and possible remains of an antebellum brickyard and plantation. Audubon Zoo (16OR96) contains a layer of brick and coal, mixed with early to mid nineteenth century artifacts, which was observed within a construction trench. Both sites represent potentially significant cultural resources and have been recommended for additional testing.

Several properties listed on the National Register of Historic Places are located within 1.6 km (1 mi) of the project area. Within Orleans Parish, the Carrollton Historic District encompasses much of the postbellum and early twentieth century housing within Carrollton; it was listed on November 2, 1987. Individual structures in Carrollton which are listed include the 1890s Park View Guest House (listed November 5, 1982), and the 1882 Greenville Hall, Dominican College (listed August 29, 1977).

Camp Parapet Powder Magazine (listed May 24, 1977) lies immediately north of the project area in Jefferson, Louisiana. The original fortification was built in 1861 by Confederate forces, who named it Fort Smith and, subsequently, Fort Morgan. Following its 1862 capture by Federal troops, its name was changed to Camp Parapet; it remained in Federal control throughout the duration of the Civil War. Only the powder magazine has survived. Finally, the previously discussed Magnolia Lane Plantation includes the early nineteenth century big house and associated dependencies: a kitchen, two sheds, five cabins, a chicken coup, greenhouses, and a renovated barn. The plantation was listed on the National Register on February 13, 1986.

Table 1. Previously recorded archeological sites near the project area¹.

SITE NUMBER	NAME	SITE DESCRIPTION	CULTURAL AFFILIATION	TESTING	NRHP ELIGIBILITY
Jefferson Parish					
16JE138	Elmwood Plantation	Historic sugar plantation located on River Road on the east bank of the Mississippi River	Nineteenth and early twentieth centuries	Magnetometer survey, backhoe trenches, and test units	Potentially significant
16JE139	Seven Oaks Plantation Site	Historic sugar cane and rice plantation located on a natural levee at the junction of LA Highway 541 and 18	Nineteenth and early twentieth centuries	Unknown	Not significant
16JE143	Avondale Plantation	Historic sugar plantation located near Avondale Shipyards	Nineteenth and early twentieth centuries	Shovel testing and surface reconnaissance	Potentially significant
16JE156	Magnolia Lane	Historic plantation located on a natural levee south of LA Highway 541	Nineteenth and early twentieth centuries	Shovel testing and test units	Listed on the National Register on February 13, 1986
16JE207	---	Multi-component site containing brick building foundations	Nineteenth century	Test units, auger tests, and probing	Potentially significant
Orleans Parish					
16OR96	Audubon Zoo	Historic deposit of possible kitchen related artifacts located on Audubon Park/Zoological Garden property	Nineteenth century	Construction trench profiling and surface collection	Potentially significant

¹Data obtained from the State Site Files, Louisiana Division of Archaeology, Department of Culture, Recreation and Tourism, Baton Rouge.

CHAPTER VI

METHODS

Field Methods

In accordance with the Scope of Services (Appendix II), two portions of the project reach were examined for cultural resources through a combination of pedestrian survey and systematic auger testing. This survey was designed to locate, identify, and assess all cultural resources situated within the survey area. The first segment includes the area between River Miles 105.2 and 104.7-L, and incorporates the planned 1992 extension of the Carrollton Bend Revetment. Because of the anticipated depth of the modern alluvial deposits, fieldwork included the systematic excavation of 73 auger tests in the 1,075 m (3,526 ft) long survey area (Figures 1 and 5). A baseline, oriented at 164°, was established at the upriver end of the segment. Survey transects, numbered 1 through 15, were oriented at 20 m intervals along the baseline. Transect 1 was placed near the levee toe, while Transect 15 was positioned approximately 10 m north of the Mississippi River. The survey transects were oriented at a 74° angle and extended approximately parallel to the levee. Auger tests were excavated at 50 m intervals along each transect; auger tests along adjacent transects were offset to maximize survey coverage (Figure 5). The entire area was traversed on foot, and the bankline and other exposed surfaces were examined for evidence of cultural resources.

A second component of this survey included the excavation of six auger tests in the 610 m (2,000 ft) segment of the project area located upriver from the survey baseline, i.e., between River Miles 105.7 and 105.2-L. This area corresponds to a potential future extension of the Carrollton Bend Revetment easement (Figure 1). The auger tests were designed to provide overview data concerning the geomorphological development of the area, and the potential for the upriver area to contain substantive archeological deposits. They were placed adjacent to three dirt roads that extend from the levee towards the river in the survey area. Three irregular survey transects, numbered 16 through 18, were placed along these roads, and two auger tests were placed along each transect. All were located upriver from an extensive area of fill associated with the construction of a Jefferson Parish water intake station and its associated water pipes (Figure 5).

Auger tests measured either 2½ or 4 in in diameter and were excavated to a depth of approximately 2 m below ground surface. The stratigraphic soil profile of each auger test was characterized utilizing Munsell Soil Color Charts and a textural triangle. In addition, the soils were examined for evidence of cultural materials and related deposits. A total of 13 auger tests were described extensively by the staff geomorphologist. These included six auger tests located along the baseline between the levee and the river, six auger tests placed upriver from the baseline, and a final auger test placed near the downriver end of the survey area and adjacent to the observed brick piers (Figure 5). These 13 auger tests are illustrated in Appendix I.

The final component of the field investigations consisted of limited archeological testing around a series of brick piers that were observed near the downriver end of the archeological survey area, i.e., at the upriver end of the existing Carrollton Bend revetment. Approximately 14 brick piers were observed in the overgrown weeds located adjacent to the cut grass situated near the riverside toe of the levee (Figure 5). These brick piers formed an irregular alignment that was oriented approximately parallel to the levee. During the initial auger testing of the survey segment, one auger test (Transect 2, Auger Test 18) was placed adjacent to these piers; an additional seven auger tests subsequently were excavated throughout the area. In addition, a 1 x 2 m excavation unit was placed near the piers to provide additional information concerning the deposition and archeological integrity of the associated deposits. Unit datum was established at 15 cm above ground surface near the southwest corner of the unit. The unit was excavated following natural stratigraphic layers; 10 cm levels were used to maintain control within strata. Unit excavation terminated

(1)

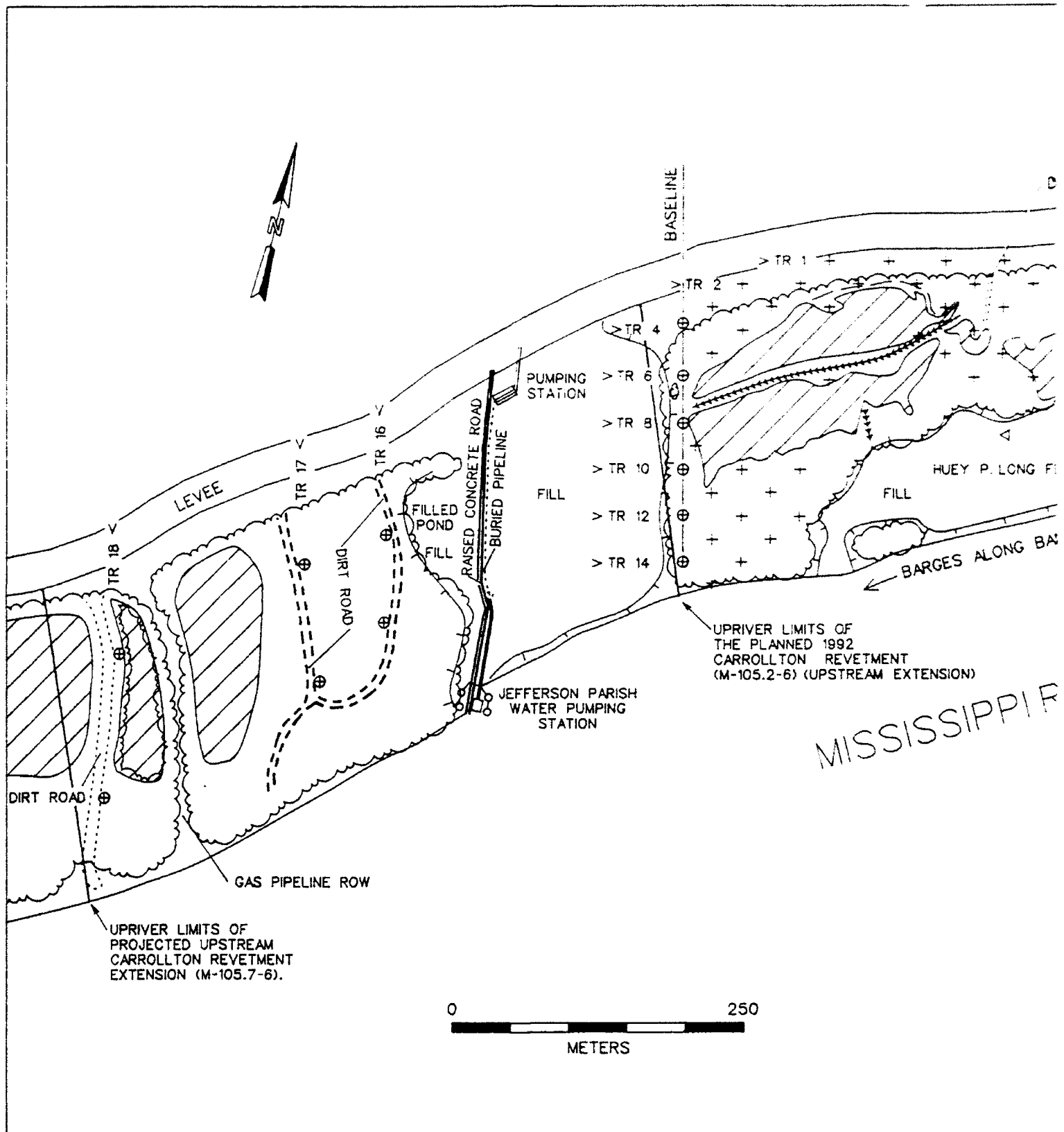
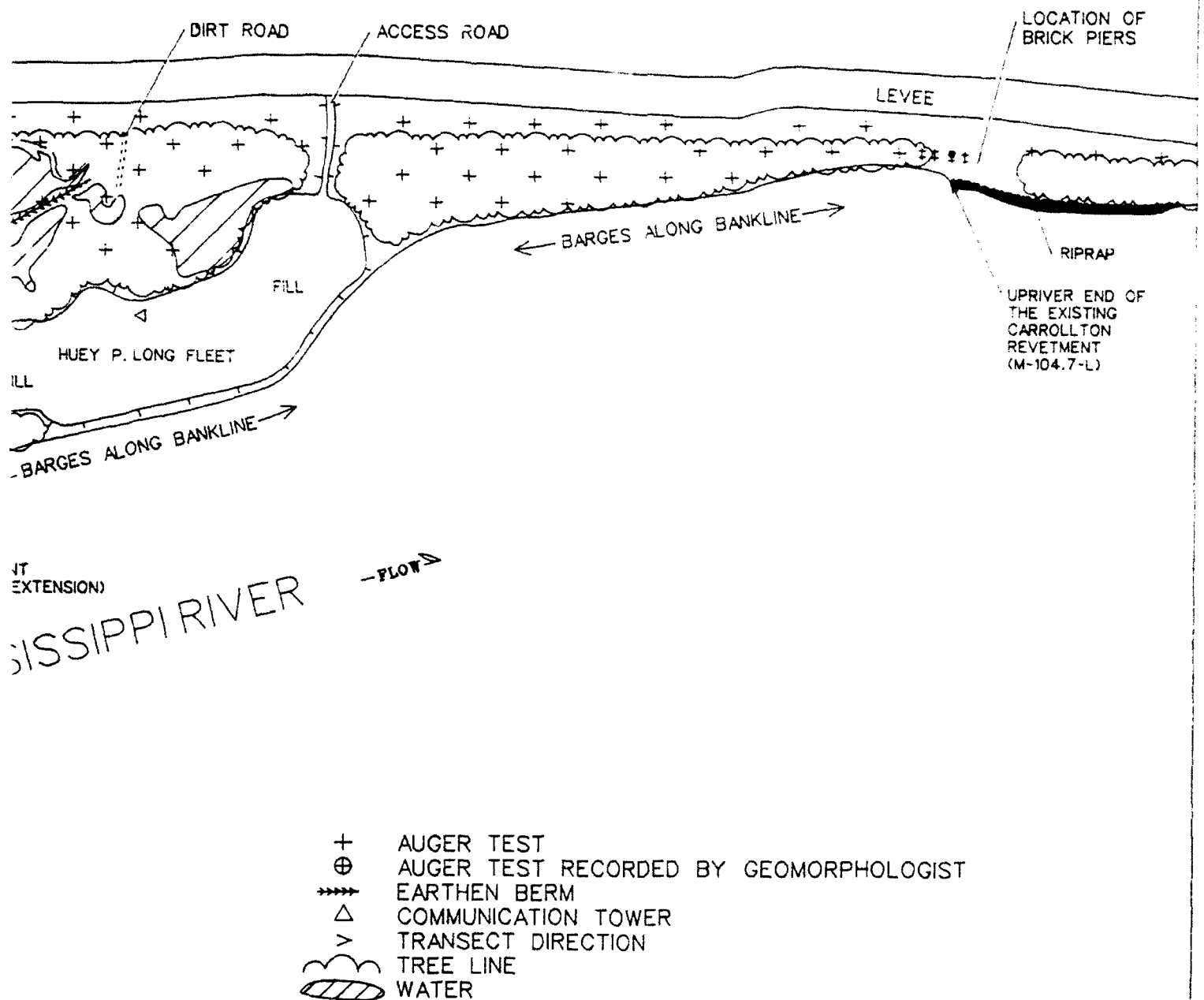


Figure 5. Plan of the project area, showing landscape features and excavated auger tests.

(2)



at 110 cm below datum (cmbd), at which point large quantities of articulated brick, large concrete chunks, and compact rubble impeded further excavation. An auger test was excavated in the base of the unit to a depth of 200 cmbd. Stratigraphic soil profiles were drawn for three walls, and soils were described utilizing Munsell Soil Color Charts and a textural triangle. The unit was photographed prior to completing the survey, and then backfilled. Finally, an electronic distance meter (EDM) was used to map the locations of the brick piers and the excavation unit, and to tie them to the existing levee.

All recovered materials were washed and sorted by material category, and encoded into a computerized site catalog to allow for further manipulation of the data. The computerized site catalog was organized by category, functional group, type, and subtype. The first level, category, represented the artifact material type and was based on the format defined by the Louisiana Division of Archaeology. The second level, functional group, was based on classifications established by South (1977). The third and fourth levels, type and subtype, were defined by diagnostic attributes. Historic artifact analysis was aided by Miller (personal communication 1988), Nelson (1968), and South (1977). All chronological data provided for recovered diagnostic artifacts refer to the use popularity date of the artifact.

CHAPTER VII

RESULTS OF THE FIELD INVESTIGATIONS

Introduction

Field investigations within the Carrollton Bend Revetment project area consisted of three interrelated components. The downriver 1,075 m (3,526 ft) of the survey area was tested utilizing pedestrian reconnaissance and the systematic excavation of 73 auger tests. The upriver 610 m (2,000 ft) long segment was examined through pedestrian reconnaissance and the excavation of six judgmentally placed auger tests. Finally, one cultural resource location, a series of brick piers, was tested through excavation of seven additional auger tests and one 1 x 2 m unit. A total of 86 auger tests and one 1 x 2 m excavation unit were placed within the 70 ac survey area. Results of the field investigations are discussed below.

Pedestrian Reconnaissance

Most of the area has been damaged extensively by modern activities. At the upriver (western) end of the project area, three large, water-filled borrow pits cover much of the batture. A cleared natural gas pipeline right-of-way lies between two of these borrow pits. The remainder of the area, i.e., from the northern woodline to approximately 75 to 100 m (246 to 328 ft) north of the Mississippi River, can be characterized as low, frequently inundated terrain. There are three dirt roads in the survey area that extend from the levee towards the Mississippi River; they are built on 0.7 to 1.2 m (2.3 to 4 ft) of fill to raise them above the surrounding terrain (Figure 5). Modern debris, including several large sewer pipe segments, is scattered throughout the woods and near the roads. A low sandy ridge and a gradually sloping bankline are located adjacent to the Mississippi River; this ridge apparently represents a small modern natural levee.

An extensive area of modern fill lies a short distance west of the survey baseline. The fill is approximately 1 to 1.5 m (3.3 to 4.9 ft) thick; it consists primarily of dirt, concrete, asphalt, and shell. The USGS topographic quadrangle (Figure 1) and modern aerial photographs illustrate that this material is being used to fill an existing borrow pit. Continued filling is resulting in a gradual expansion of this area. Within the western half of this filled area, a Jefferson Parish water intake pumping station, the associated pipes, and an adjacent raised concrete road extend from the levee south to the Mississippi River (Figure 5).

Several large, water-filled borrow pits also are found east of the survey baseline (Figure 5). A 1 to 1.5 m (3.3 to 4.9 ft) high earthen berm extends between the two larger borrow pits. A 50 m (164 ft) long dirt road extends from near the levee to a small borrow pit. The area surrounding the road is covered with modern debris, including piled and scattered chunks of concrete; some of these are buried. For example, the excavation of Transect 3, Auger Test 6 was impeded by buried concrete at 48 cm below ground surface (cmbs).

South of the borrow pits, the Huey P. Long Fleet Company occupies a 350 m (1,148 ft) long, 80 m (262 ft) wide area along the Mississippi River. The area contains approximately 1.5 to 2 m (4.9 to 6.6 ft) of modern fill. This fill contains a considerable amount of modern refuse, e.g., architectural debris and concrete. The company continues to expand its yard by dumping fill throughout the area. An access road built on 2 m (6.6 ft) of fill connects the yard to the levee. Numerous barges align the Mississippi River bankline in front of, and upriver from, the company yard. Finally, the upriver end of the existing Carrollton Bend Revetment terminates near the downriver end of the project area (Figure 5). In that area, the bankline is covered with riprap and debris, while the adjacent woods contain modern alluvial deposits.

Auger Testing Results

During the initial survey of the project area, 73 auger tests were excavated within the downriver 1,075 m (3,526 ft) that extend east from the baseline; an additional six auger tests were excavated in the 610 m (2,000 ft) long area located upriver from the survey baseline (Figure 5). These auger tests exhibited a variety of stratigraphic profiles. In general, those auger tests placed within the northern half of the survey area contained various clays overlying loams and sands. Transect 4, Auger Test 1 exhibited a typical auger test profile for those auger tests located near the levee. The auger test contained 8 strata (Figure 6). Stratum I consisted of a 14 cm thick deposit of 10YR 3/2 very dark grayish brown silty clay loam; below this was a 16 cm thick layer of 10YR 4/2 dark grayish brown silty clay (Stratum II). Between 30 and 50 cm below ground surface, a layer of 10YR 4/4 dark yellowish brown silty clay was encountered (Stratum III). Stratum IV contained of a 30 cm layer of 10YR 4/2 dark grayish brown silty clay mottled with 10YR 5/1 gray silty clay. Stratum V formed a 16 cm thick deposit of 10YR 4/1 silty clay mottled with 10YR 4/4 dark yellowish brown silty clay. This rested on a 4 cm thick lens of 5Y 5/1 gray fine grained, very well sorted sand. Stratum VII consisted of a 45 cm thick deposit of 10YR 4/4 dark yellowish brown silt loam with 10YR 5/1 gray silt loam mottles and occasional thin bands of sand. The final excavated stratum, Stratum VIII, extended from 145 to 200 cm below ground surface. This stratum consisted of interlaminated and interbedded 10YR 5/1 gray, 10YR 4/4 dark yellowish brown, and 10YR 4/1 dark gray silt loam and sandy loam, with occasional 1 to 3 cm thick bands of clay and very well sorted, very fine grained sand. In summary, the upper 96 cm of this auger test is characterized by various silty clays and alluvial deposits, which generally form in a near slack water environment. The lower 104 cm was dominated by silt loams, sandy loams, and sands. No cultural deposits were observed within this auger test.

Auger tests placed within 100 m (328 ft) of the Mississippi River generally contained silt, loam, and sand, apparently reflecting near-river natural levee deposition. Transect 12, Auger Test 1 was placed approximately 160 m (525 ft) south of Transect 4, Auger Test 1, and 70 m (230 ft) north of the Mississippi River (Figure 5). This auger test contained seven strata (Figure 7). Stratum I formed an 8 cm thick deposit of 10YR 4/1 dark gray clayey silt with 10YR 4/4 dark yellowish brown clayey silt mottles, and organic debris. The underlying Stratum II, which extended to a depth of 65 cm below ground surface, consisted of 10YR 4/1 dark gray to 10YR 4/4 dark yellowish brown clayey silt with zones of laminated silty clay and silt loam, and silt laminae. This rested on a 21 cm thick Stratum III, a 10YR 4/2 dark grayish brown silt loam with 10YR 4/4 to 10YR 4/6 dark yellowish brown silt loam mottles. Between 86 and 125 cm below ground surface, the auger test contained 10YR 4/2 dark grayish brown loamy sand with 10YR 3/2 very dark grayish brown loamy sand and 10YR 4/4 dark yellowish brown loamy sand mottles; deteriorated wood fragments were observed throughout the stratum. Stratum V extended from 125 to 162 cm below ground surface; it contained 10YR 3/2 very dark grayish brown sand with occasional 1 - 2 cm thick bands of 10YR 3/1 very dark gray silty clay to clayey silt. This rested on a 24 cm thick deposit of 5Y 4/1 dark gray silty clay, which contained numerous deteriorated wood fragments. Stratum VII, the basal stratum, extended from 186 to 200 cm below ground surface; it consisted of 10YR 3/1 very dark gray sandy loam. While the upper 65 cm of the auger test was characterized by clayey silt deposits, the remainder consisted primarily of various silt loams, sandy loams, and sands. As with Transect 4, Auger Test 1, the stratigraphically higher soils exhibited a finer texture than the lower soils. No cultural deposits or materials were observed within Transect 12, Auger Test 1. Likewise, no evidence of non-modern cultural deposits was observed in the other excavated auger tests.

As discussed in Chapter II, the auger tests demonstrate that the project area is covered by considerable amounts of modern alluvial deposits. The banded and interbedded alluvial deposits observed within most of the auger tests reflect the annual flooding of the batture. A number of auger tests produced modern materials between 30 and 110 cm below ground surface. For example, Auger Test 2 produced modern monofilament netting from a depth of 125 cm below surface, and Auger Test 6 yielded 1 piece of unidentified bottle glass from a depth of 40 to 48 cm below surface (Table 2).

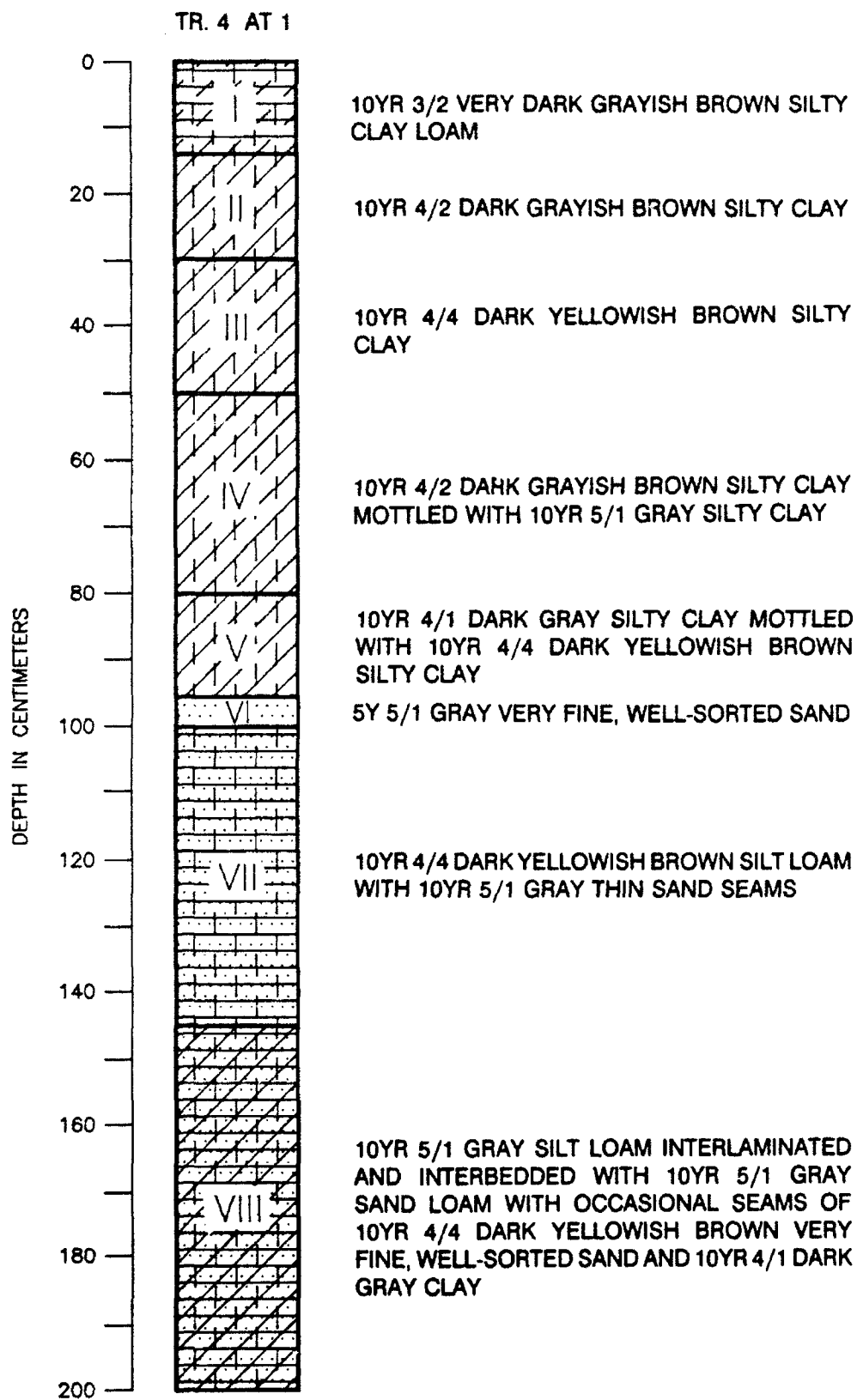


Figure 6. Stratigraphic soil profile of Transect 4, Auger Test 1.

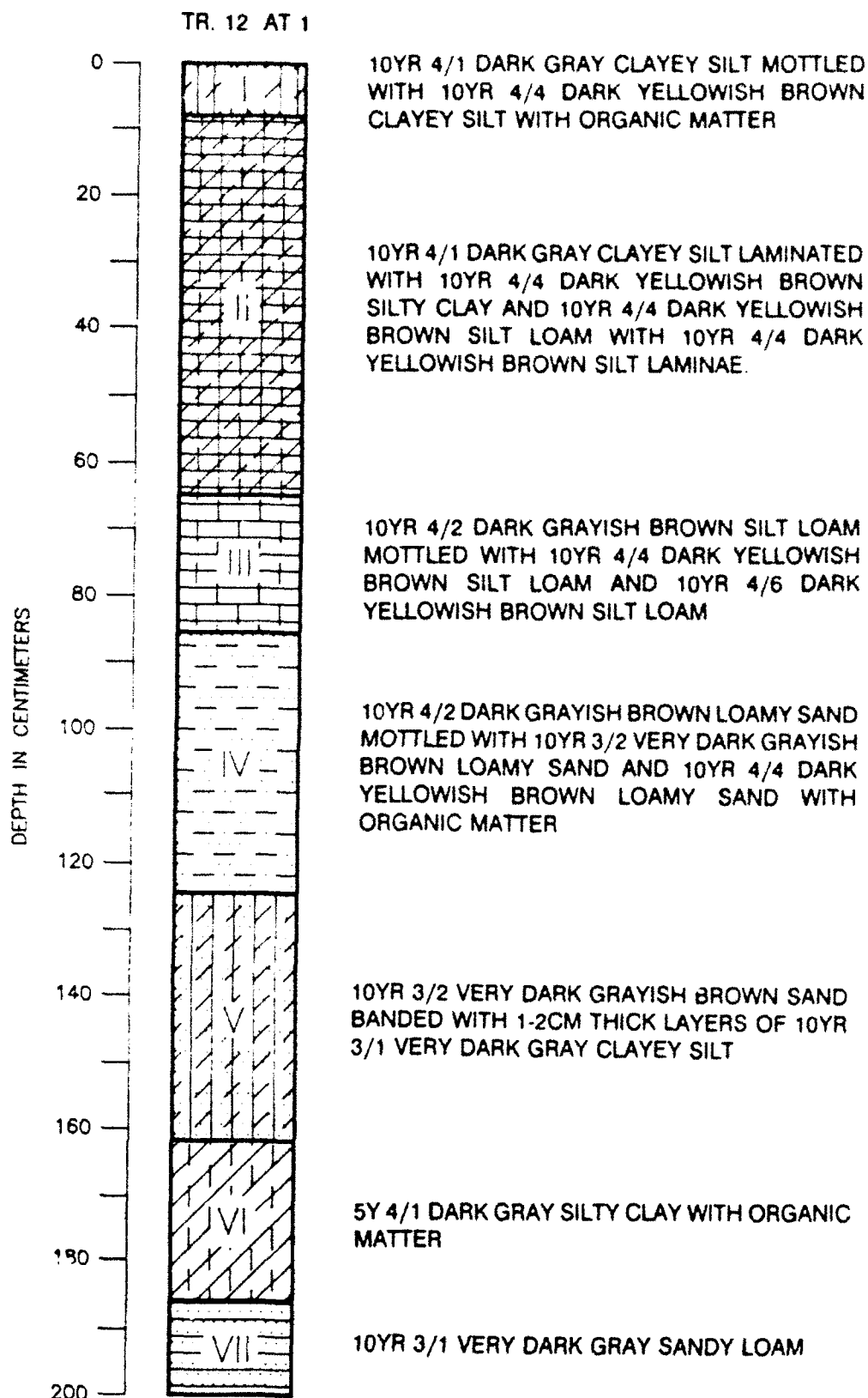


Figure 7. Stratigraphic soil profile of Transect 12, Auger Test 1.

Table 2. Inventory from Cultural Resource Survey of Carrollton Bend Revetment, Mississippi River M-105.7 to 101.7-L.

FS	LOCATION	ARTIFACT TYPE	DESCRIPTION	CT	COMMENTS
Location 01 (Brick Piers)					
003	Auger Test 01, 110 cmbs	Miscellaneous Architectural	Tar	2	
004	Auger Test 05, 110 cmbs	Architectural Stone	Brick Fragment(s)	1	
004	Auger Test 05, 110 cmbs	Miscellaneous Architectural	Mortar	2	
Location 01, Transect 02					
002	Auger Test 18 @ 890 m, 150 cmbs	Roofing Materials	Roofing Shingle, tar paper	1	
Transect 03, Auger Test 06					
005	@ 275 m, 40 - 48 cmbs	Unidentified Bottle Glass	Colorless Fragment(s)	1	Probably modern
Transect 16, Auger Test 02					
001	125 cmbs	Modern monofilament netting		1	
Unit 01					
012	Surface Collection	Unidentified Metal	Sheet Metal	1	
Unit 01, Stratum 1					
006	Level 01, 11.5 - 21.5 cmbs	Architecture (Ceramics, Historic)	Sewage/Drainage pipe	1	Fragment
006	Level 01, 11.5 - 21.5 cmbs	Ironstone	White Undecorated sherd(s)	2	
006	Level 01, 11.5 - 21.5 cmbs	Roofing Materials	Slate, Roofing	1	
006	Level 01, 11.5 - 21.5 cmbs	Roofing Materials	Asbestos Shingle(s)	2	
006	Level 01, 11.5 - 21.5 cmbs	Faunal (Nonhuman)	Unidentified Bone(s)	1	Large mammal - fragment
006	Level 01, 11.5 - 21.5 cmbs	Faunal (Nonhuman)	Identified Tooth/Teeth	1	Large rodent incisor (poss. nutria/beaver)
006	Level 01, 11.5 - 21.5 cmbs	Furniture	Linoleum Fragment(s)	1	
006	Level 01, 11.5 - 21.5 cmbs	Window Glass fragment(s)	Colorless Fragment(s)	1	
006	Level 01, 11.5 - 21.5 cmbs	Blown-in-Mold Glass	Colorless Fragment(s)	2	
006	Level 01, 11.5 - 21.5 cmbs	Blown-in-Mold Glass	Amber Fragment(s)	1	Modern
006	Level 01, 11.5 - 21.5 cmbs	Machine-Made Lip (Glass)	Colorless Fragment(s)	1	Modern
006	Level 01, 11.5 - 21.5 cmbs	Machine Made Lip (Glass)	Amber Fragment(s)	1	Modern beer bottle fragment
006	Level 01, 11.5 - 21.5 cmbs	Machine Made Base (Glass)	Light Green Fragment(s)	1	
006	Level 01, 11.5 - 21.5 cmbs	Machine-Made Base (Glass)	Colorless Fragment(s)	1	
006	Level 01, 11.5 - 21.5 cmbs	Melted Glass	Dark Green Fragment(s)	1	

Table 2, continued

FS	LOCATION	ARTIFACT TYPE	DESCRIPTION	CT	COMMENTS
006	Level 01, 11.5 - 21.5 cmbd	Molded-Technique-Unknown (Glass)	Colorless Fragment(s)	1	Possible toy part
006	Level 01, 11.5 - 21.5 cmbd	Unidentified Bottle Glass	Colorless Fragment(s)	1	
006	Level 01, 11.5 - 21.5 cmbd	Wire Common Nail(s)		1	6.0 - 6.5 inches long
006	Level 01, 11.5 - 21.5 cmbd	Wire Common Nail(s)		1	Nail fragment
006	Level 01, 11.5 - 21.5 cmbd	Furniture Metal	Bed Spring(s)	2	
006	Level 01, 11.5 - 21.5 cmbd	Unidentified Metal	Sheet Metal	2	
006	Level 01, 11.5 - 21.5 cmbd	Projectile Parts	Centerfire Cartridge .25	1	"Western .25 ACP"
006	Level 01, 11.5 - 21.5 cmbd	Miscellaneous Hardware	Iron Wire (not Barbed Wire)	1	
006	Level 01, 11.5 - 21.5 cmbd	Metal Stable Items	Horseshoe(s)	1	
007	Level 02, 21.5 - 27 cmbd	Ironstone	Colored Glaze sherd(s)	1	
007	Level 02, 21.5 - 27 cmbd	Miscellaneous Architectural	Tar	2	
007	Level 02, 21.5 - 27 cmbd	Ro. fing Materials	Roofing Shingle, tar paper	2	
007	Level 02, 21.5 - 27 cmbd	Melted Glass	Colorless Fragment(s)	1	
007	Level 02, 21.5 - 27 cmbd	Unidentified Bottle Glass	Amber Fragment(s)	1	Modern
007	Level 02, 21.5 - 27 cmbd	Lamp Glass	Colorless Fragment(s)	1	
007	Level 02, 21.5 - 27 cmbd	Wire Common Nail(s)		1	
007	Level 02, 21.5 - 27 cmbd	Unidentified Metal	Metal Object(s)	4	Rust
007	Level 02, 21.5 - 27 cmbd	Other Miscellaneous Stone	Coal Slag	1	
007	Level 02, 21.5 - 27 cmbd	Personal Synthetic Items	Miscellaneous	1	Plastic hair curler pin
Unit 01, Stratum II					
008	Level 01, 27 - 38 cmbd	Architecture (Ceramics, Historic)	Ceramic Tile (fireplace or bathroom)	2	
008	Level 01, 27 - 38 cmbd	Ironstone	Colored Glaze sherd(s)	1	
008	Level 01, 27 - 38 cmbd	Redware	Unglazed sherd(s)	1	
008	Level 01, 27 - 38 cmbd	Miscellaneous Architectural	Tar	1	
008	Level 01, 27 - 38 cmbd	Miscellaneous Architectural	Other (Construction Materials)	1	Fired clay block
008	Level 01, 27 - 38 cmbd	Roofing Materials	Asbestos Shingle(s)	1	
008	Level 01, 27 - 38 cmbd	Window Glass fragment(s)	Aqua Fragment(s)	1	
008	Level 01, 27 - 38 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	1	"...V..."
008	Level 01, 27 - 38 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	1	
008	Level 01, 27 - 38 cmbd	Machine-Made Base (Glass)	Colorless Fragment(s)	1	Partial embossment, "...LAW.../SALE OR RE-U..."

Table 2, continued

FS	LOCATION	ARTIFACT TYPE	DESCRIPTION	CT	COMMENTS
008	Level 01, 27 - 38 cmbd	Melted Glass	Colorless Fragment(s)	1	
008	Level 01, 27 - 38 cmbd	Wire Common Nail(s)		3	Nail fragments
008	Level 01, 27 - 38 cmbd	Unidentified Metal	Metal Object(s)	1	Rust
008	Level 01, 27 - 38 cmbd	Projectile Parts	Centerfire Cartridge .25	1	"Western[.25 ACP]"
009	Level 02, 38 - 48 cmbd	Architecture (Ceramics, Historic)	Ceramic Tile (fireplace or bathroom)	2	
009	Level 02, 38 - 48 cmbd	Architecture (Ceramics, Historic)	Ceramic Fixture(s) Plumbing	2	
009	Level 02, 38 - 48 cmbd	Ironstone	White Undecorated sherd(s)	1	
009	Level 02, 38 - 48 cmbd	Whiteware	Plain sherd(s)	1	
009	Level 02, 38 - 48 cmbd	Miscellaneous Architectural	Mortar	1	
009	Level 02, 38 - 48 cmbd	Roofing Materials	Roofing Shingle, tar paper	2	
009	Level 02, 38 - 48 cmbd	Roofing Materials	Asbestos Shingle(s)	1	
009	Level 02, 38 - 48 cmbd	Flora (Furniture)	Linoleum Fragment(s)	1	
009	Level 02, 38 - 48 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	1	"Pepsi Col..."
009	Level 02, 38 - 48 cmbd	Machine-Made Lip (Glass)	Dark Green Fragment(s)	1	Wire/champagne
009	Level 02, 38 - 48 cmbd	Machine-Made Lip (Glass)	Colorless Fragment(s)	1	
009	Level 02, 38 - 48 cmbd	Machine-Made Lip (Glass)	Colorless Fragment(s)	1	Milk bottle lip
009	Level 02, 38 - 48 cmbd	Machine-Made Lip (Glass)	Colorless Fragment(s)	1	Jar threads
009	Level 02, 38 - 48 cmbd	Melted Glass	Green Fragment(s)	1	Melt jar lid
009	Level 02, 38 - 48 cmbd	Unidentified Bottle Glass	Dark Green Fragment(s)	1	Wire/champagne
009	Level 02, 38 - 48 cmbd	Unidentified Bottle Glass	Light Green Fragment(s)	1	Coke bottle fragment
009	Level 02, 38 - 48 cmbd	Wire Common Nail(s)		3	Nail fragments
009	Level 02, 38 - 48 cmbd	Unidentified Metal	Metal Object(s)	2	Rust fragments
009	Level 02, 38 - 48 cmbd	Miscellaneous Hardware	Battery Part(s)	1	"D" cell battery
009	Level 02, 38 - 48 cmbd	Miscellaneous Hardware	Iron Wire (not Barbed Wire)	1	Wire
009	Level 02, 38 - 48 cmbd	Metal Toys	Jack(s)	1	
009	Level 02, 38 - 48 cmbd	Miscellaneous Activities Hardware	Unidentified Bakelite Object(s)	1	"...1 M..25..."
011	Level 03, 48.5 - 54 cmbd	Architecture (Ceramics, Historic)	Ceramic fixture(s), Plumbing	1	
011	Level 03, 48.5 - 54 cmbd	Window Glass fragment(s)	Colorless Fragment(s)	1	
011	Level 03, 48.5 - 54 cmbd	Machine-Made Base (Glass)	Colorless Fragment(s)	1	
011	Level 03, 48.5 - 54 cmbd	Unidentified Metal	Unidentified Nail(s)	1	
011	Level 03, 48.5 - 54 cmbd	Unidentified Metal	Unidentified Iron Object(s)	5	

Table 2, continued

FS	LOCATION	ARTIFACT TYPE	DESCRIPTION	CT	COMMENTS
Unit 01, Stratum III					
010	Level 01, 54 - 65 cmbd	Unidentified Bottle Glass	Colorless Fragment(s)	1	
010	Level 01, 54 - 65 cmbd	Lamp Glass	Colorless Fragment(s)	1	
010	Level 01, 54 - 65 cmbd	Light Bulb Glass	Frosted Fragment(s)	1	
010	Level 01, 54 - 65 cmbd	Unidentified Metal	Sheet Metal	2	
013	Level 02, 65 - 76 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	1	
013	Level 02, 65 - 76 cmbd	Unidentified Metal	Sheet Metal	4	Possible can fragments
Unit 01, Stratum IV					
014	Level 01, 76 - 86 cmbd	Polypropylene plastic pellet		1	Partially melted together pellets
014	Level 01, 76 - 86 cmbd	Buff-Bodied Earthenware	Unglazed sherd(s)	1	
014	Level 01, 76 - 86 cmbd	Machine-Made-Bottle Glass	Amber Fragment(s)	1	Modern beer bottle fragment
014	Level 01, 76 - 86 cmbd	Unidentified Bottle Glass	Colorless Fragment(s)	2	Probably modern
014	Level 01, 76 - 86 cmbd	Light Bulb Glass	Frosted Fragment(s)	2	Modern
014	Level 01, 76 - 86 cmbd	Metal Storage Items	Iron Can(s)	7	Can fragments
015	Level 02, 86 - 90 cmbd	Roofing Materials	Roofing Shingle, tar paper	1	
015	Level 02, 86 - 90 cmbd	Metal Storage Items	Iron Can(s)	4	Can lid fragments
015	Level 02, 86 - 90 cmbd	Unidentified Material	Unidentifiable Rubber Material	1	
015	Level 02, 86 - 90 cmbd	Miscellaneous Activities Synthetic	Cellophane	1	
Unit 01, Stratum V					
016	Level 01, 90 - 96 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	1	Probably modern
Unit 01, Stratum VI					
017	Level 01, 90 - 105 cmbd	Miscellaneous Architectural	Asphalt	2	Includes 1 modern road asphalt fragment
017	Level 01, 90 - 105 cmbd	Miscellaneous Architectural	Tar	2	
017	Level 01, 90 - 105 cmbd	Roofing Materials	Slate, Roofing	2	
017	Level 01, 90 - 105 cmbd	Roofing Materials	Roofing Shingle, tar paper	7	
017	Level 01, 90 - 105 cmbd	Window Glass fragment(s)	Aqua Fragment(s)	2	
017	Level 01, 90 - 105 cmbd	Blown-in-Mold Glass	Colorless Fragment(s)	2	
017	Level 01, 90 - 105 cmbd	Unidentified Bottle Glass	Dark Green Fragment(s)	1	
017	Level 01, 90 - 105 cmbd	Unidentified Bottle Glass	Cobalt Blue Fragment(s)	1	
017	Level 01, 90 - 105 cmbd	Unidentified Bottle Glass	Colorless Fragment(s)	3	
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		2	0 - 1.0 inches long
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		3	2.0 - 2.5 inches long
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		7	2.5 - 3.0 inches long
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		1	3.0 - 3.5 inches long

Table 2, continued

FS	LOCATION	ARTIFACT TYPE	DESCRIPTION	CT	COMMENTS
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		7	Fragment
017	Level 01, 90 - 105 cmbd	Wire Common Nail(s)		4	Tar paper nail fragments
017	Level 01, 90 - 105 cmbd	Machine-Cut Nail(s)		1	2.5 - 3.0 inches long
017	Level 01, 90 - 105 cmbd	Machine-Cut Nail(s)		1	Fragment
017	Level 01, 90 - 105 cmbd	Construction Hardware	Rivet(s)	1	Brass
017	Level 01, 90 - 105 cmbd	Other Miscellaneous Stone	Coal	1	

Location 1

One archeological resource was located during pedestrian survey and auger testing of the project area. This resource, designated Location 1, consisted of a series of brick piers that formed an irregular alignment between the levee and the river in the vicinity of Transect 2, Auger Test 18. Fourteen of these piers were observed and recorded across the surface of a 40 m (131 ft) long area (Figure 8). These piers were not in situ, and were found scattered throughout the area in an irregular manner; a number of piers rested on their side or were inverted. While five of the eight auger tests placed near the brick piers exhibited no evidence of cultural deposits, three produced buried modern materials. Transect 2, Auger Test 18 produced a piece of tar paper roofing material at 150 cm below ground surface. Location 1, Auger Test 1 contained chunks of tar-like material at approximately 110 cm, while Location 1, Auger Test 5 yielded 2 pieces of mortar and 1 brick fragment also from a depth of 110 cm below surface (Table 2). These materials rested on an impenetrable surface of brick and concrete. Based on the observed morphology of the brick piers, and the presence of buried modern materials, it appeared that the brick piers and associated deposits consisted of modern fill used to inhibit riverine cutting.

One 1 x 2 m excavation unit, Unit 1, was placed along the northern side of the brick pier scatter. This unit was excavated to obtain additional data about the brick piers (Figure 8). The unit was oriented at a 74° angle, and was aligned with the previously traversed survey transects. A total of seven strata were excavated within this 1 m deep unit; an additional three strata were recorded within an auger test placed in the base of the unit (Figure 9). The 10 to 20 cm thick Stratum I consisted of 10YR 5/2 grayish brown silt mixed with 10YR 5/4 yellowish brown silt. Numerous modern materials were observed in the stratum, however, only a representative sample of the large quantity of modern materials was collected. Observed materials included modern bottle glass, plastic, styrofoam, wire screening, burlap rope, whiteware, mortar, and brick fragments. Recovered materials included 1 large mammal bone fragment, 1 large rodent tooth (e.g., nutria or beaver), 2 pieces of white, undecorated ironstone (post 1845) (Miller, personal communication 1988), and 1 colored glazed ironstone fragment, 2 asbestos shingles, 1 roofing slate fragment, 1 roofing tar paper fragment, and 1 piece of tar (Table 2). Also collected were 1 piece of linoleum, 1 plastic hair curler pin, 1 piece of coal slag, 2 metal bed springs, 2 pieces of sheet metal, 1 metal horseshoe, 1 .25 centerfire cartridge casing, 1 iron wire fragment, 4 pieces of rusted metal, and 3 wire nails (post 1890) (Nelson 1968). Recovered glass included 1 window glass fragment, 2 blown-in-mold glass fragments, 4 pieces of machine-made bottle glass, including 2 modern fragments, 1 possible glass toy part, 2 pieces of melted glass, 1 lamp glass fragment, and 2 pieces of unidentified glass (Table 2). In addition, the top of a randomly positioned articulated brick segment (brick pier ?) was uncovered in the southeast corner of the unit.

The 23 to 38 cm thick Stratum II (22 to 55 cmbd) consisted of 10YR 3/3 dark brown loam. The articulated brick observed in the southeast corner of the unit rested on a second articulated brick segment, which extended to the base of the stratum. Moderate quantities of cultural materials were located within the stratum. The majority of the material was observed and/or recovered from the southeast corner of the unit, near the articulated brick. These modern and potential historic materials included whiteware, modern and non-diagnostic bottle glass, window glass, wire nails, plastic, wire screening, aluminum foil, burned glass, brick, and concrete. Recovered materials included 1 unglazed redware fragment, 2 pieces of ironstone, 1 plain whiteware sherd (1820 - 1900+) (South 1977), 4 ceramic tile fragments, 3 ceramic plumbing fixture parts, 1 clay architectural block fragment, 2 asbestos shingles, 1 mortar fragment, 2 pieces of roofing tar paper, 1 piece of tar, 1 linoleum fragment, and 1 miscellaneous bakelite hardware object (Table 2). Metal artifacts included 6 wire nails, 1 unidentified nail, 1 .25 centerfire cartridge casing, 1 modern battery part, 1 toy jack, 1 piece of wire, and 8 unidentifiable metal fragments. Several pieces of glass were recovered including 2 window glass fragments, 3 pieces of blown-in-mold glass, 5 machine-made glass fragments, 2 melted glass fragments, and 2 pieces of unidentified bottle glass (Table 2).

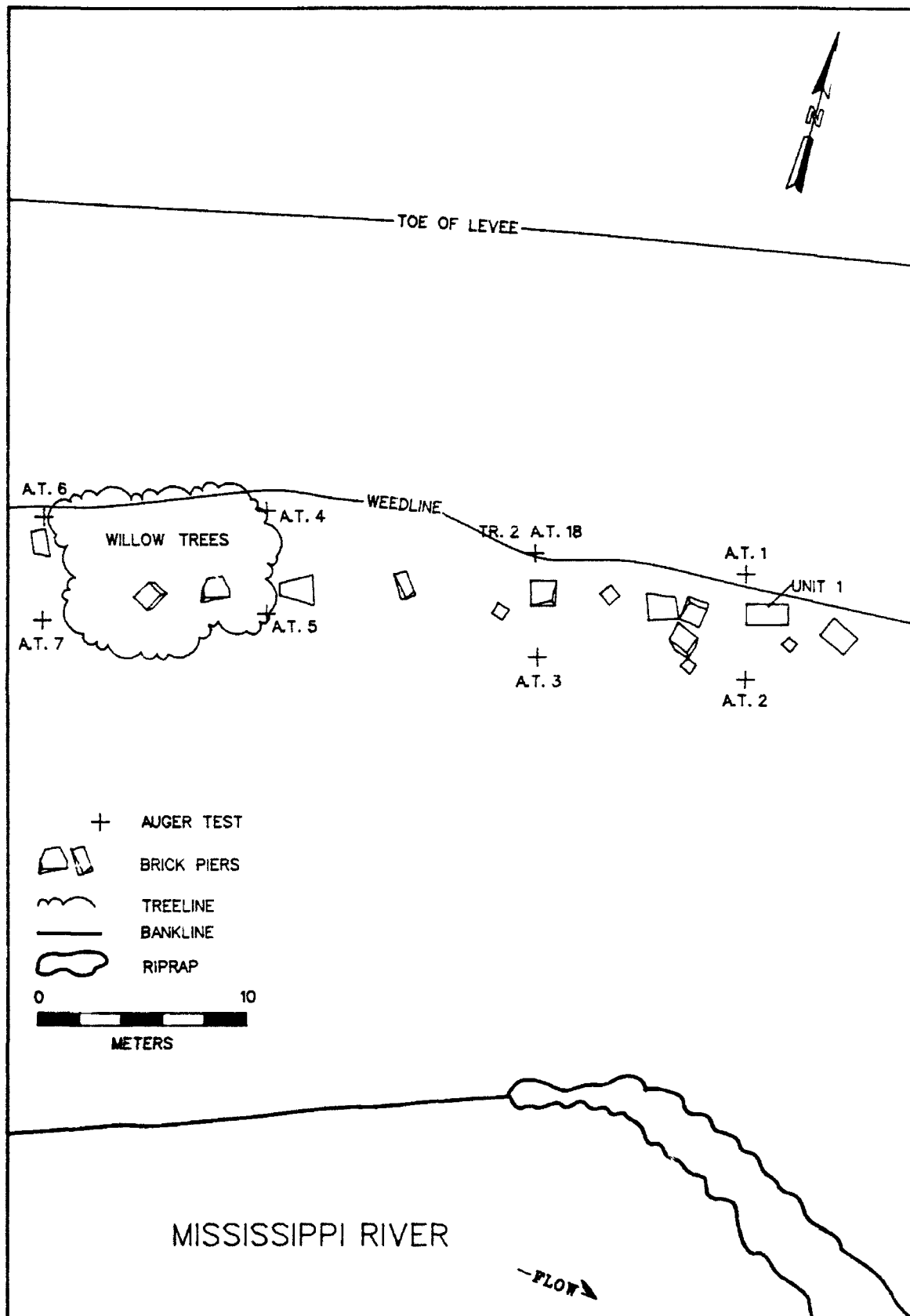


Figure 8. Plan of observed brick piers and adjacent auger tests at Location 1.

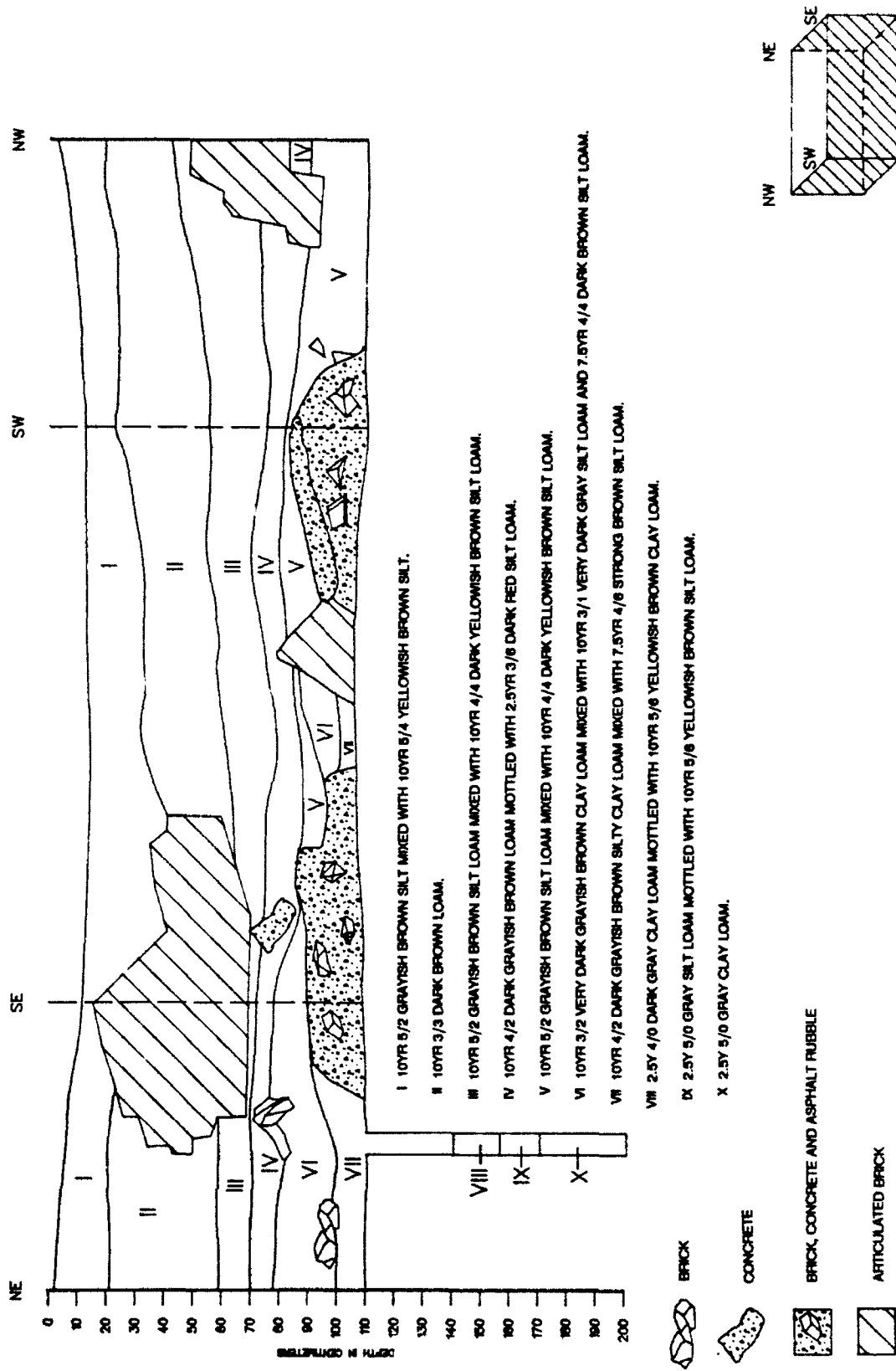


Figure 9. Stratigraphic soil profile of the east, south, and west walls of Unit 1 at Location 1.

The 11 to 25 cm thick Stratum III extended from 55 to 75 cmbd. It contained 10YR 5/2 grayish brown silt loam mixed with 10YR 4/4 dark yellowish brown silt loam. The articulated brick located in the southeast corner of the unit rested on the lower half of this stratum (Figure 9). Two additional articulated brick segments were uncovered within the stratum. These included a segment in the northwest corner of the unit that rested on its side with the bricks in a vertical position (Figure 9). The second segment, which extended out of the northern wall of the unit, also rested on its side, with the bricks on edge; the portion of the pier located in the unit measured approximately 105 cm (41 in) long, and 30 to 60 cm (12 to 24 in) wide. Only a few artifacts were located within this stratum. These included 6 sheet metal fragments, 1 piece each of lamp glass and light bulb glass, 1 piece of blown-in-mold glass, and 1 unidentified glass fragment (Table 2). Observed materials included more bottle glass, iron fragments, a burlap feed bag, brick, shell, and mortar.

Stratum IV measured 7 to 15 cm thick, and extended from 75 to 82 cmbd (Figure 9). The stratum contained 10YR 4/2 dark grayish brown loam mottled with 2.5YR 3/6 dark red silt loam. The articulated brick segments observed within Stratum III continued through Stratum IV; in addition, portions of other articulated brick and large concrete chunks were uncovered. Materials recovered from within the stratum included 1 unglazed buff-bodied earthenware sherd, 1 machine-made modern amber beer bottle fragment, 2 pieces of modern glass, 2 pieces of frosted light bulb glass, 7 iron can fragments, 1 piece of roofing tar paper, 1 piece of cellophane, and 1 piece of rubber (Table 2). Brick fragments also were observed. Stratum V formed an isolated deposit, up to 12 cm thick, which was confined to the south-central and southwestern portion of the unit; it was separated from the remainder of the unit by brick and concrete. The stratum contained 10YR 5/2 grayish brown silt loam mixed with 10YR 4/4 dark yellowish brown silt loam (Figure 9). Artifact density was very low; only 1 apparent modern blown-in-mold bottle glass fragment was recovered from this stratum (Table 2).

Stratum VI was confined to the eastern half of the unit; it was separated from the remainder of the unit by two large articulated brick segments. This stratum measured up to 20 cm in thickness and consisted of 10YR 3/2 dark grayish brown clay loam mixed with 10YR 3/1 very dark gray silt loam and 7.5YR 4/4 dark brown silt loam. In the southeast corner of the unit, this stratum rested on a consolidated deposit of brick, concrete, and asphalt rubble (Figure 9). Recovered materials included 2 pieces of asphalt, 2 pieces of tar, 2 roofing slate fragments, 7 pieces of roofing tar paper, 1 brass rivet, 1 piece of coal, 2 machine-cut nails (1815 - 1890) (Nelson 1968), 24 wire nails, 2 window glass fragments, 2 pieces of blown-in-mold glass, and 5 unidentified glass fragments (Table 2). Brick fragments, shell, and mortar also were observed within the stratum.

The 5 to 25 cm thick basal stratum, Stratum VII, was excavated to a depth of 110 cmbd. This stratum contained 10YR 4/2 dark grayish brown silty clay loam mixed with 7.5YR 4/6 strong brown silt loam. No cultural material was recovered from Stratum VII. However, considerable articulated brick, concrete chunks, and consolidated brick, concrete, and asphalt surrounded the Stratum VII soils. Unit excavation terminated at the base of Stratum VII, Level 2, because the floor of the unit was covered with brick, concrete, and asphalt, which severely impeded excavation efforts.

An auger test was placed in the east-central portion of the unit, approximately 50 cm west of the eastern wall of the unit. This auger test extended from 110 to 200 cmbd. Stratum VII soils extended to a depth of 140 cmbd. The underlying 16 cm thick Stratum VIII contained 2.5Y 4/0 dark gray clay loam mottled with 10YR 5/6 yellowish brown clay loam. This rested on Stratum IX, which extended from 156 to 170 cmbd. Stratum IX contained 2.5Y 5/0 gray silt loam mottled with 10YR 5/6 yellowish brown silt loam; the water table was encountered at 160 cmbd. The basal stratum of this auger test, Stratum X, was encountered between 170 and 200 cmbd. It consisted of 2.5Y 5/0 gray clay loam. No cultural materials were recovered from Strata VIII through X; this suggests that the cultural deposits terminated at the base of Stratum VII, i.e., at 140 cmbd.

Data collected from Unit 1 indicate that Location 1 lacks archeological integrity and substantive research potential. While a number of articulated brick segments and large concrete chunks were located throughout the unit, these construction-related materials were not in situ. A variety of modern (post-1945) materials were observed and collected from throughout the unit; while some of the artifacts may date from the early twentieth century, the assemblage suggests that the deposits within Location 1 were formed after World War II. The brick piers lie approximately 20 m north of the upriver end of the Carrollton Bend Revetment (Figures 5 and 8). They do not correspond with the historic location of any known structure. They apparently were deposited in the area to protect the bankline from riverine cutting; it is unclear whether or not the brick piers are associated with the revetment. Because of its age and lack of archeological integrity, Location 1 does not warrant designation as an archeological site. It does not possess the qualities of significance, as defined by the National Register of Historic Places criteria of significance (36 CFR 60.4[a-d]).

CHAPTER VIII

SUMMARY AND RECOMMENDATIONS

Archeological field investigations of the Carrollton Bend Revetment project area consisted of the systematic excavation of 73 auger tests within the downriver 1,075 m (3,526 ft) of the archeological survey portion of the project area; the judgmental placement of six auger tests within the upriver 610 m (2,000 ft) of the project area; and archeological assessment of Location 1, an irregular alignment of brick piers. Testing within Location 1 included mapping, and the excavation of seven additional auger tests and one 1 x 2 m unit. A total of 86 auger tests and 1 excavation unit were placed within the 70 ac project area.

Unit 1, Location 1 was excavated to a depth of 110 cmbd, i.e., approximately 1 m below ground surface. Unit excavation terminated at that point because secondary deposits of brick, concrete, and asphalt covered most of the unit floor. An auger test was excavated in the base of the unit to assess the underlying strata. The unit contained 10 strata, including strata observed within the auger test. Numerous twentieth century and modern artifacts and materials were observed and recovered from the upper seven strata, which terminated at 140 cmbd. These materials demonstrated that the cultural deposits within Location 1 were formed after World War II. They apparently were placed in the area to protect the bankline from cutting; they also may be associated with the construction of the nearby Carrollton Bend Revetment. Location 1 lacks archeological integrity and research potential and does not warrant an archeological site designation. Location 1 is not a significant cultural resource; no additional archeological investigation of this location is recommended.

Finally, no additional non-modern cultural resources were located within the survey area. Most of the area was disturbed extensively by borrow pit excavation, filling of large areas, and revetment construction. In addition, considerable modern alluvium covers most of the area. While the upriver 610 m (2,000 ft) of the area was tested less intensively than the downriver 1,075 m (3,526 ft), the observed disturbances and the auger tests suggest that no substantive archeological deposits are located in that upriver area. Based on the collected data, it appears that no potentially significant cultural resources are located in the survey area. No additional testing of the two areas assessed in the Carrollton Bend Revetment project area are recommended.

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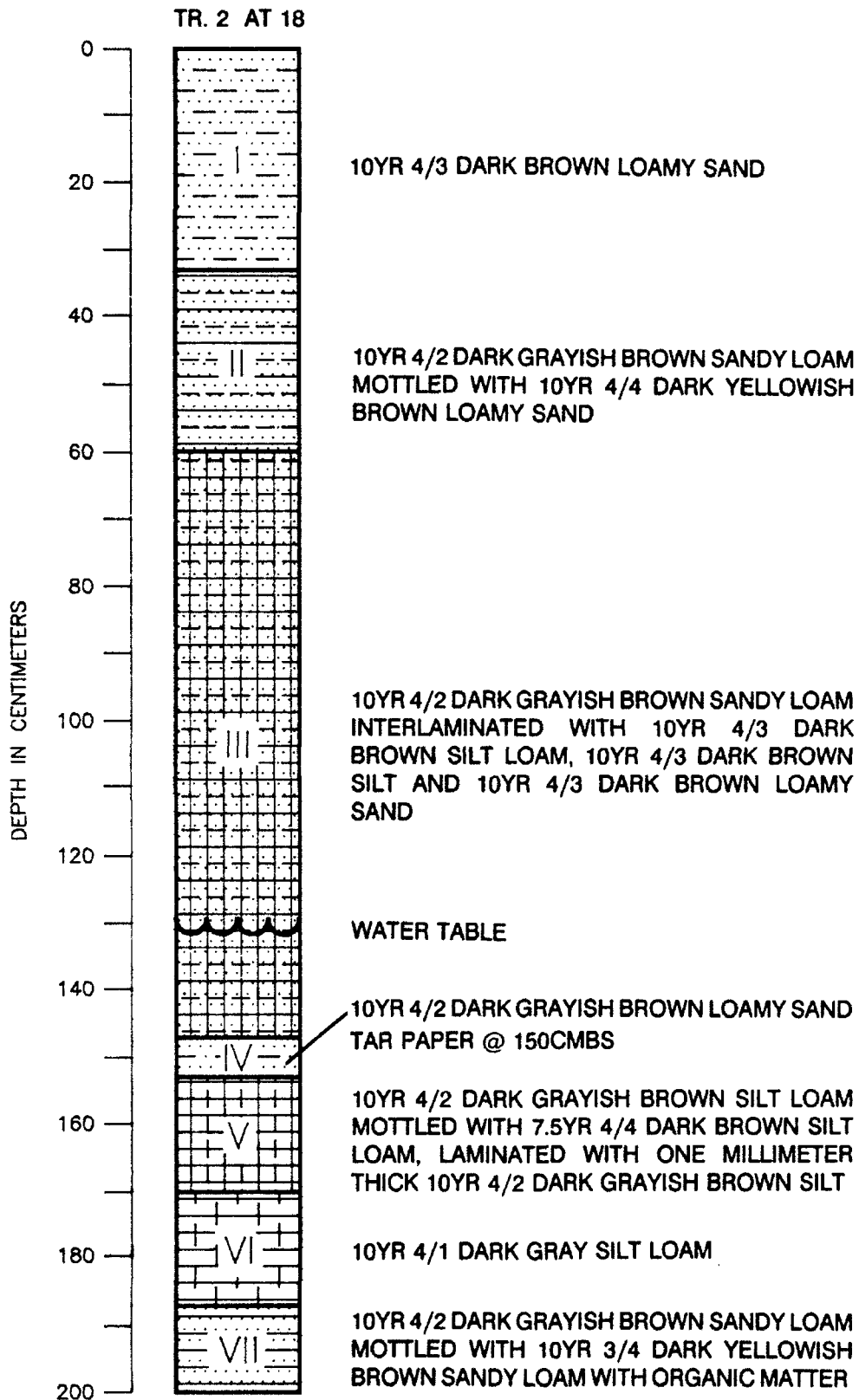
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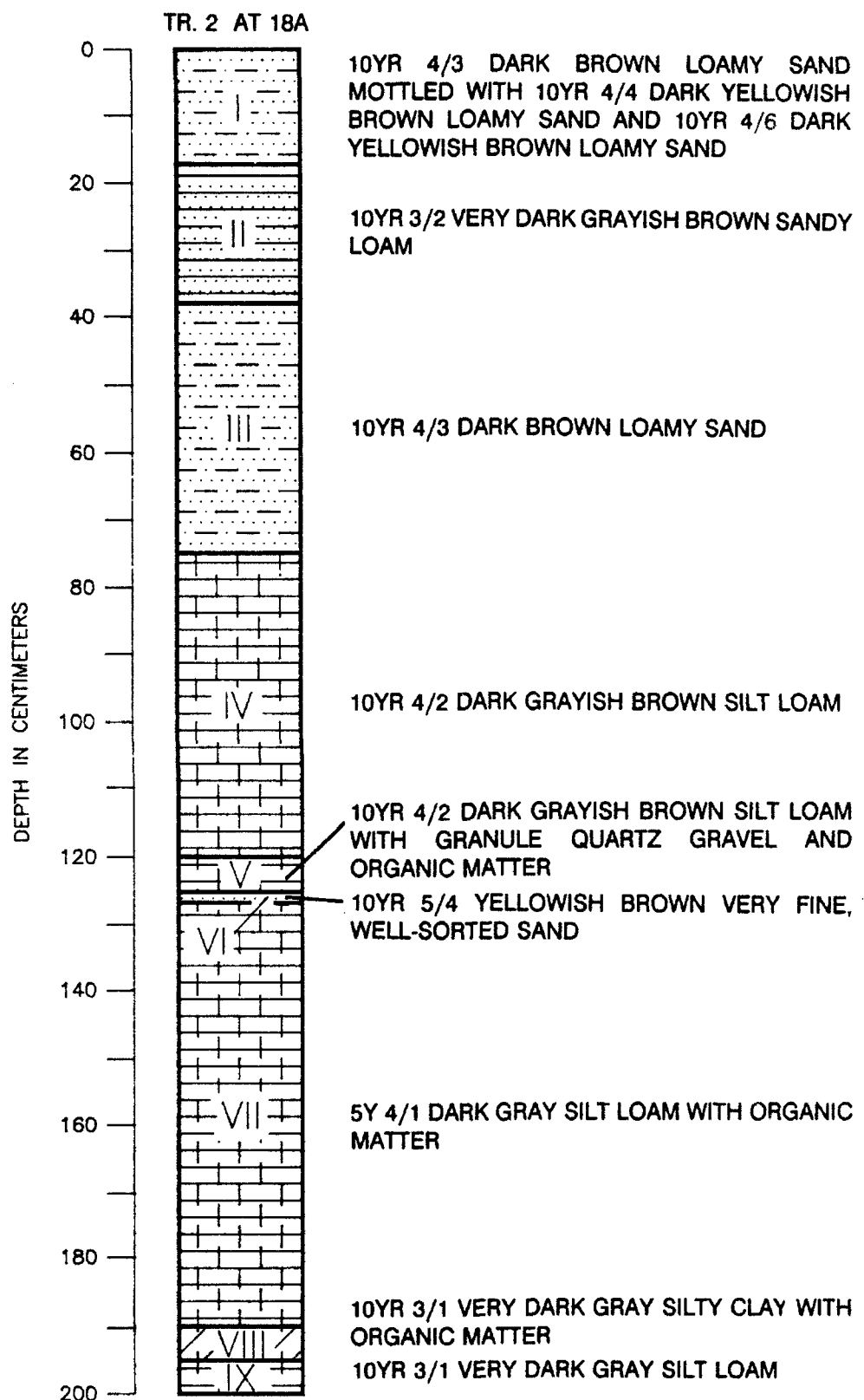
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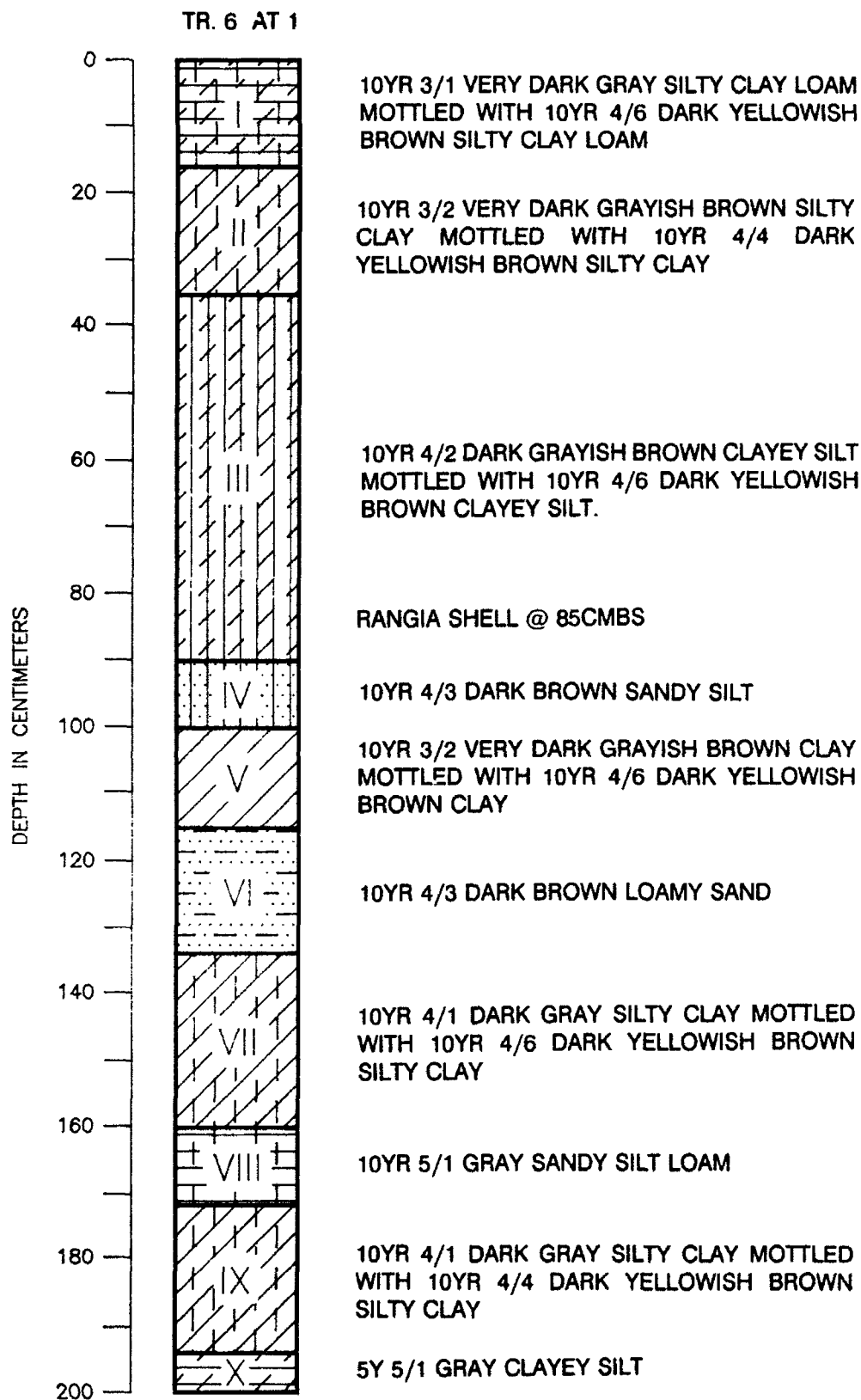
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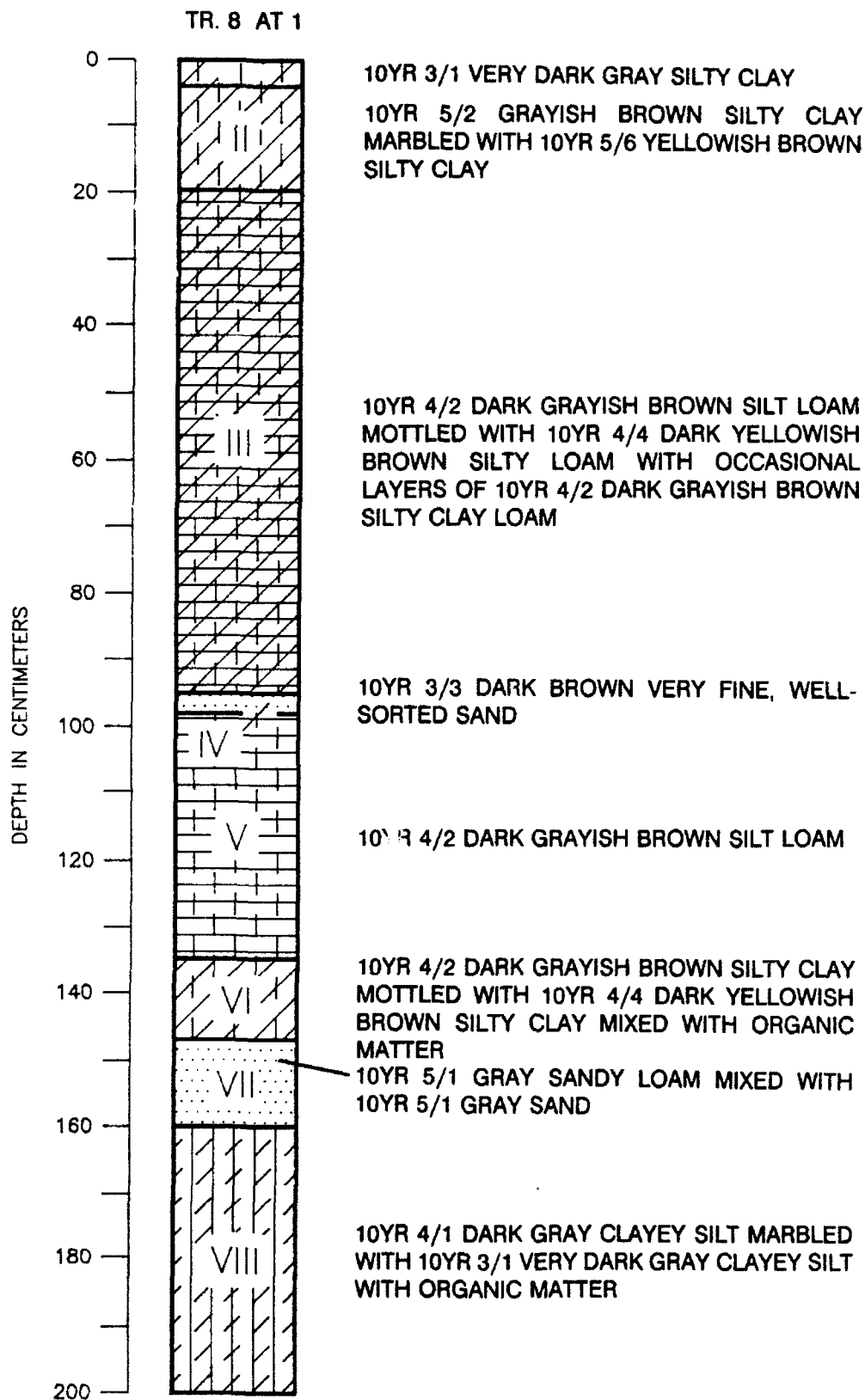
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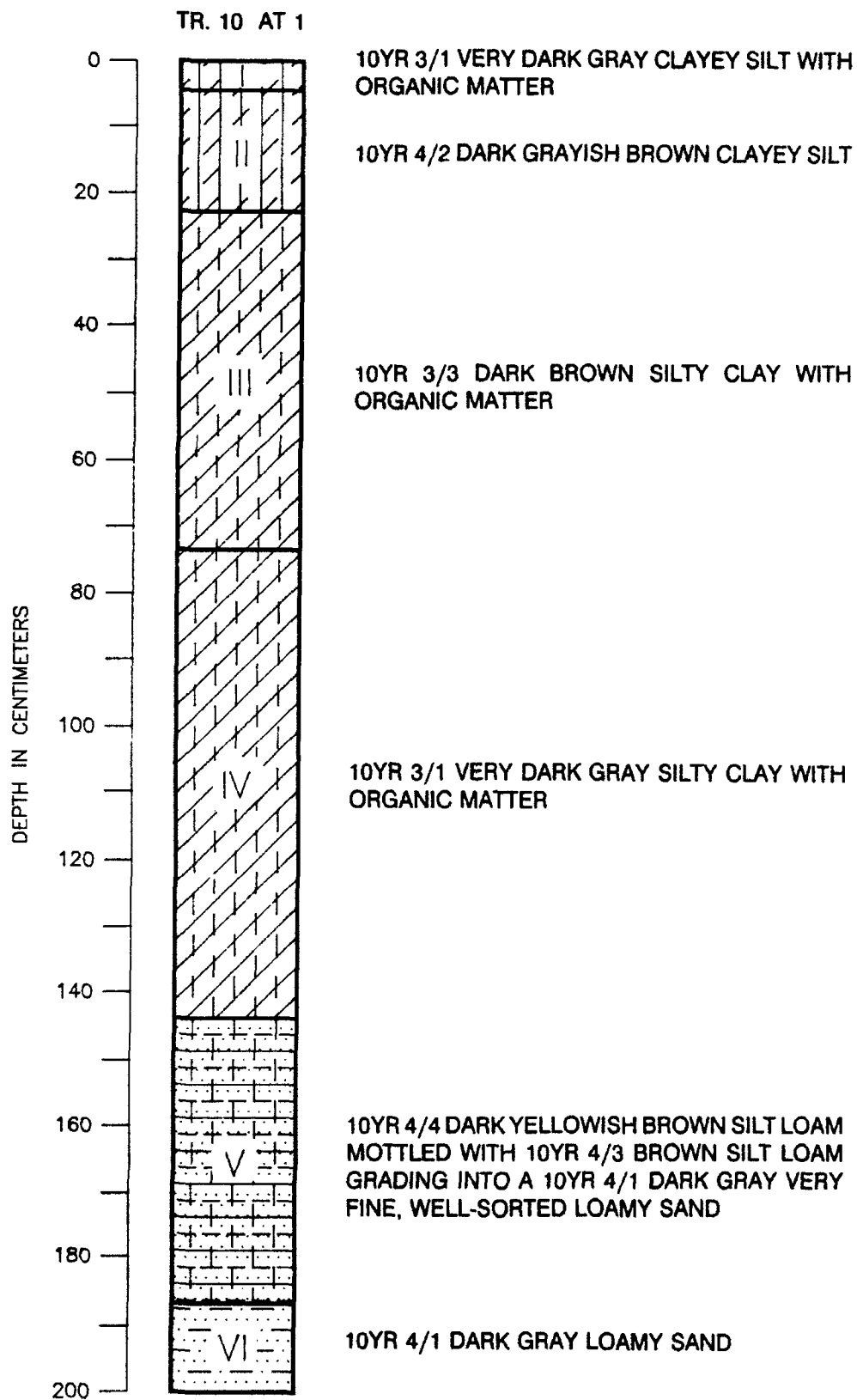
APPENDIX I
AUGER TESTS



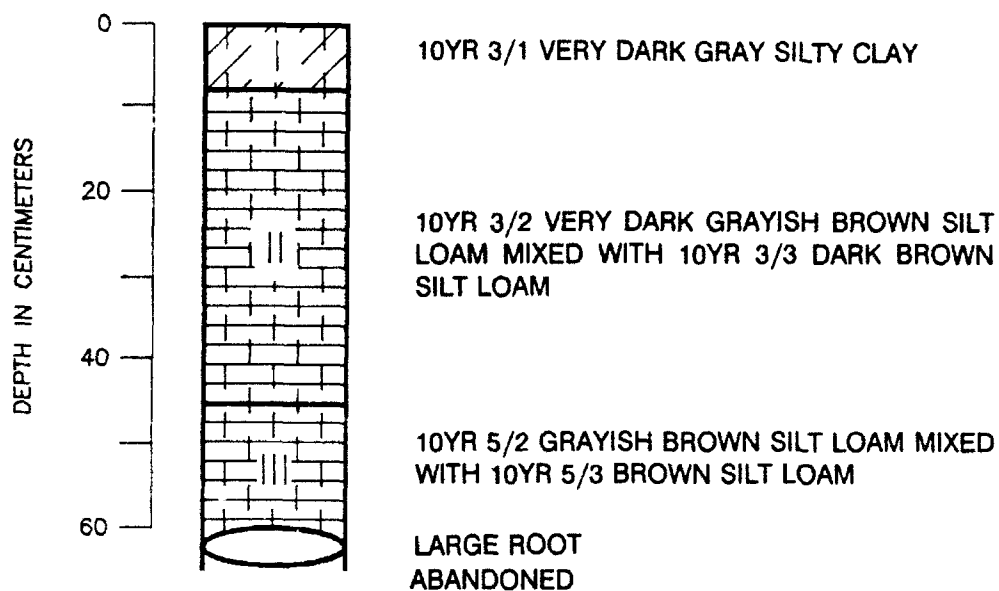




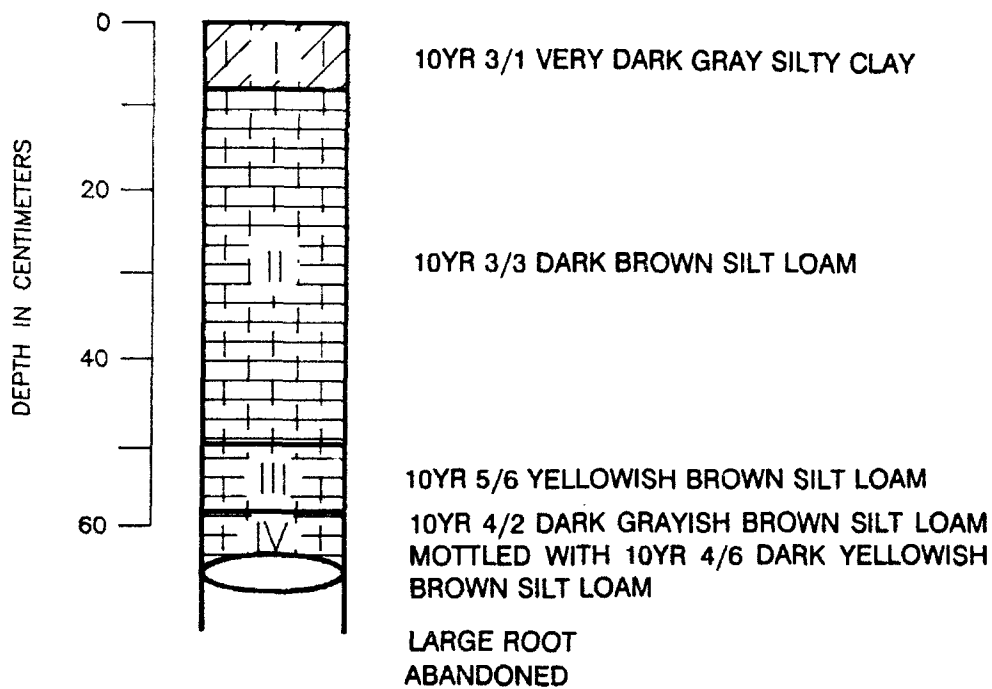




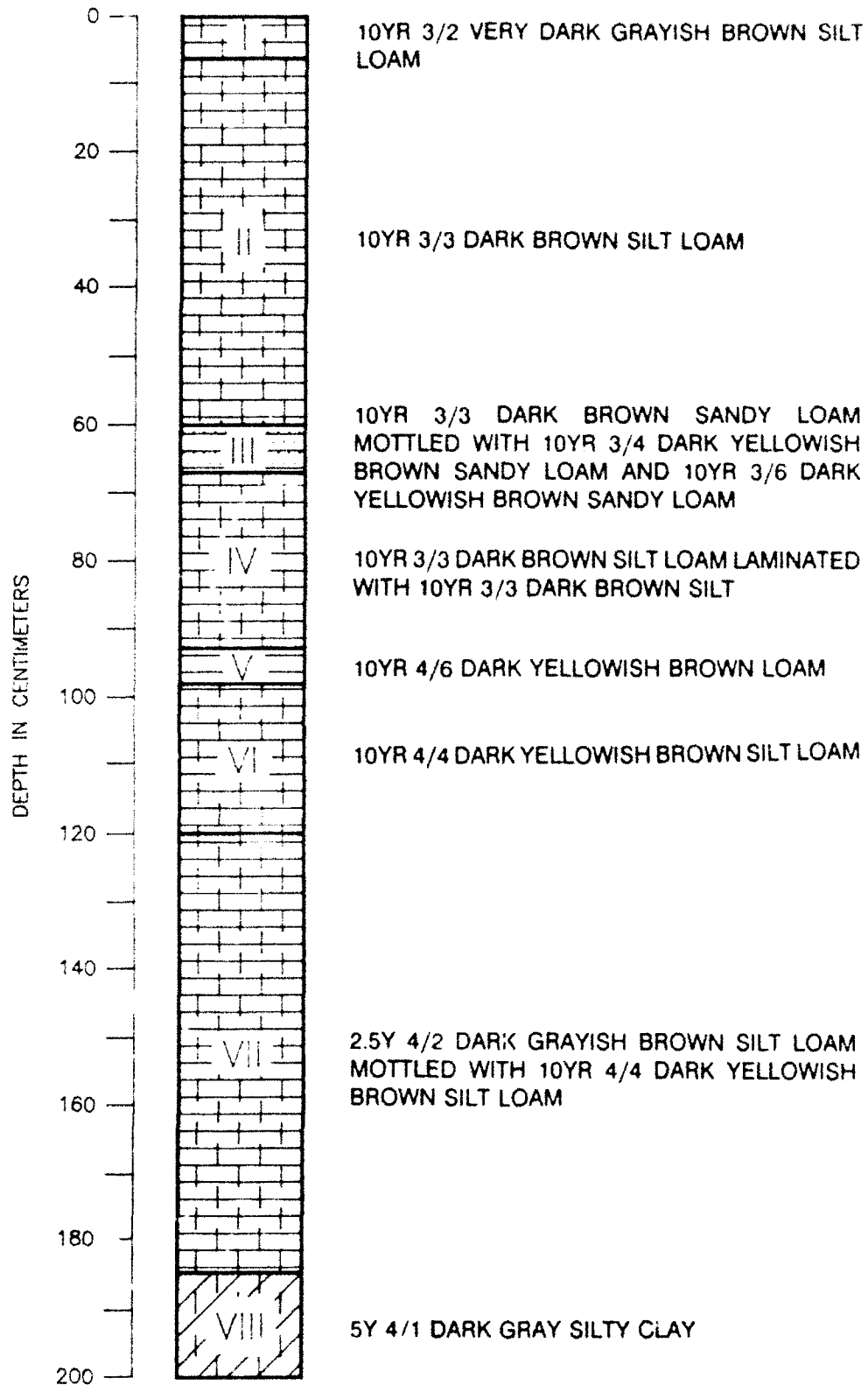
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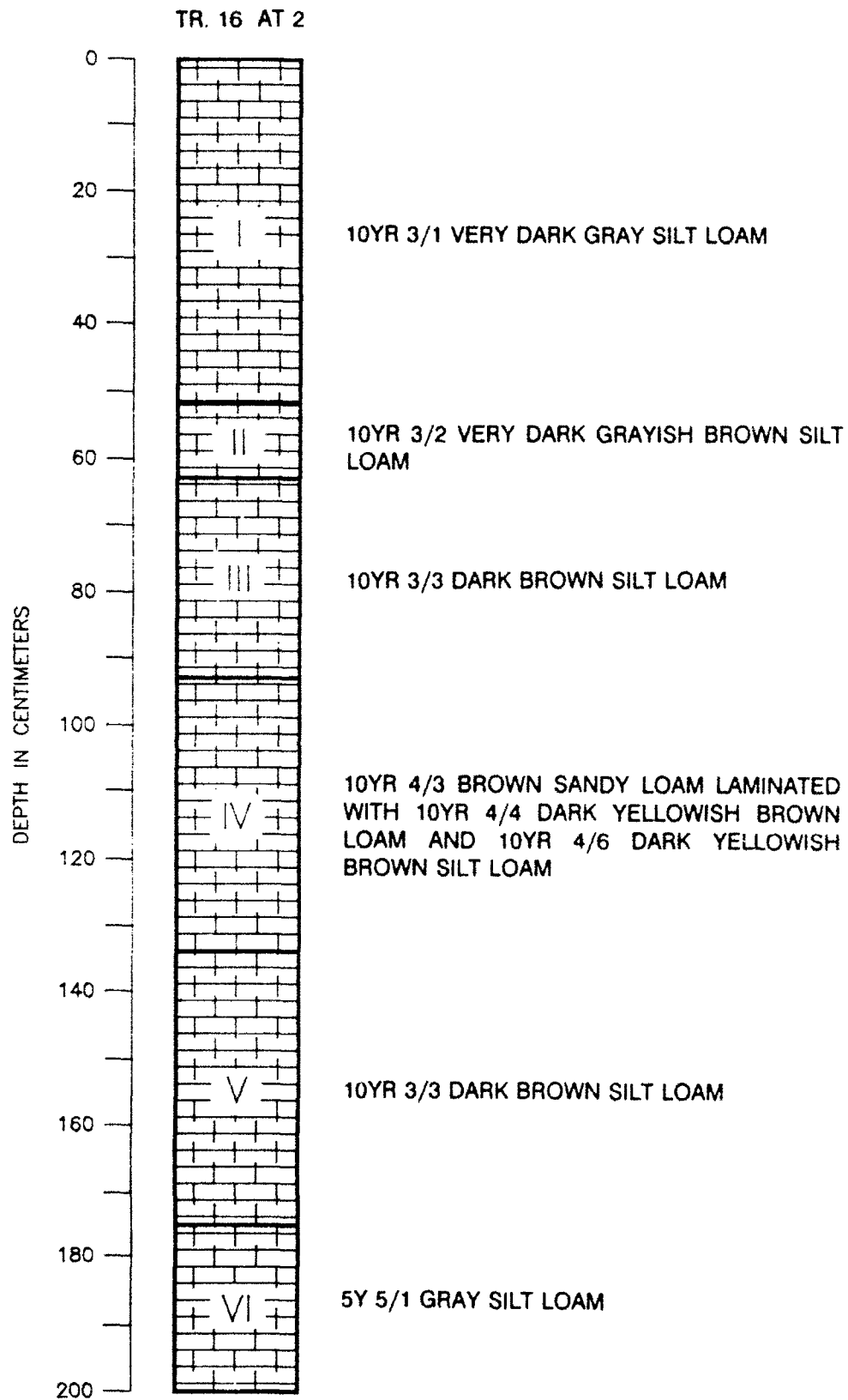


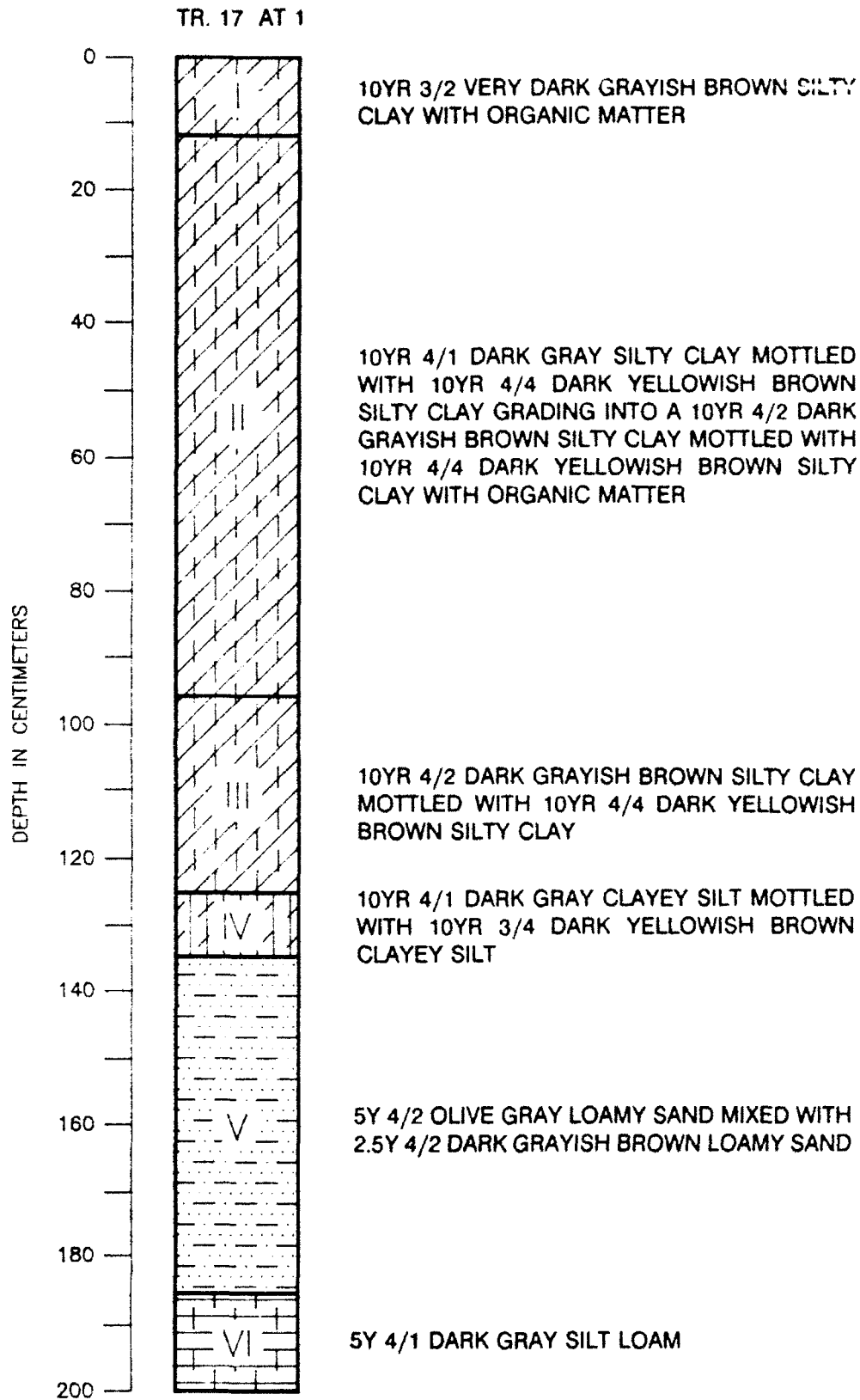
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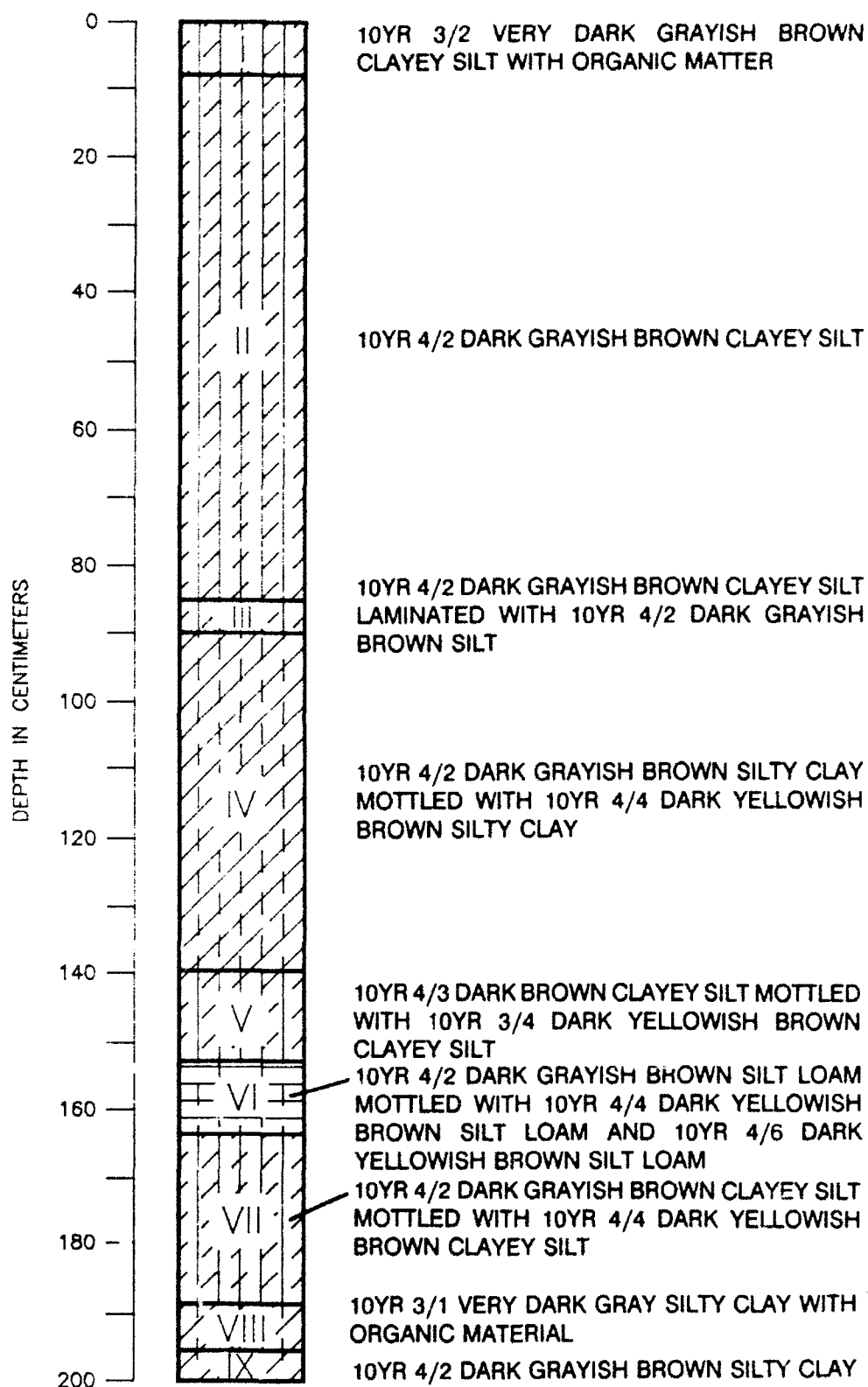
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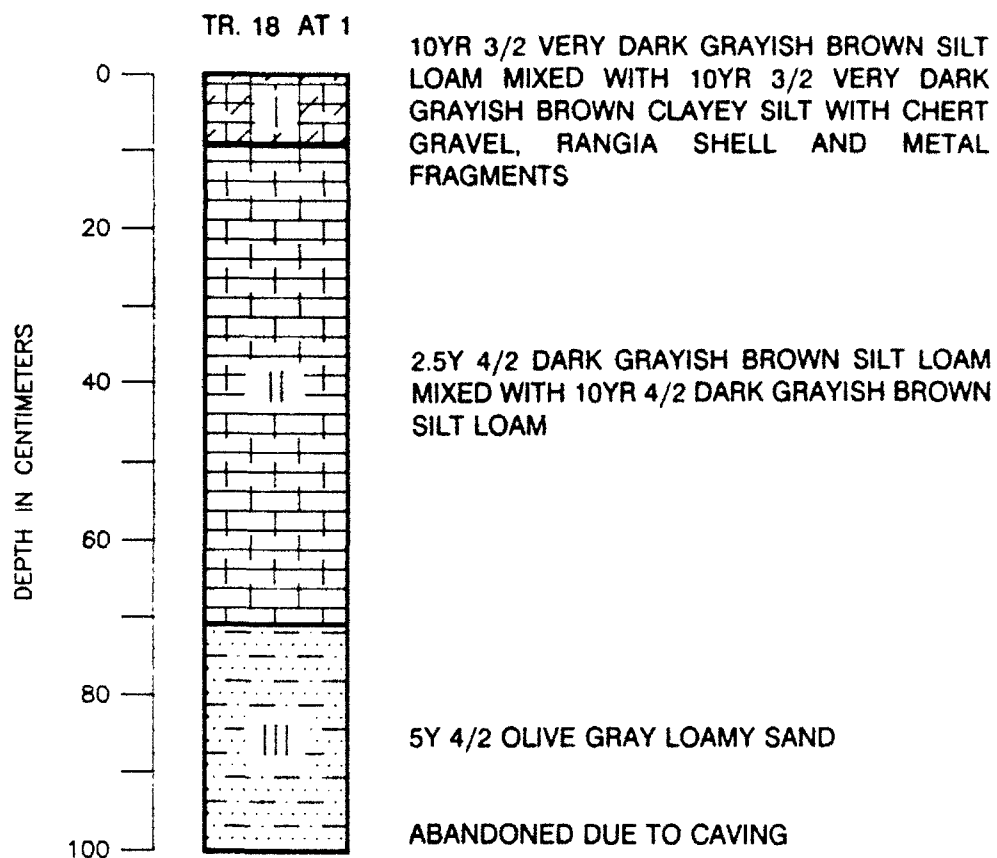




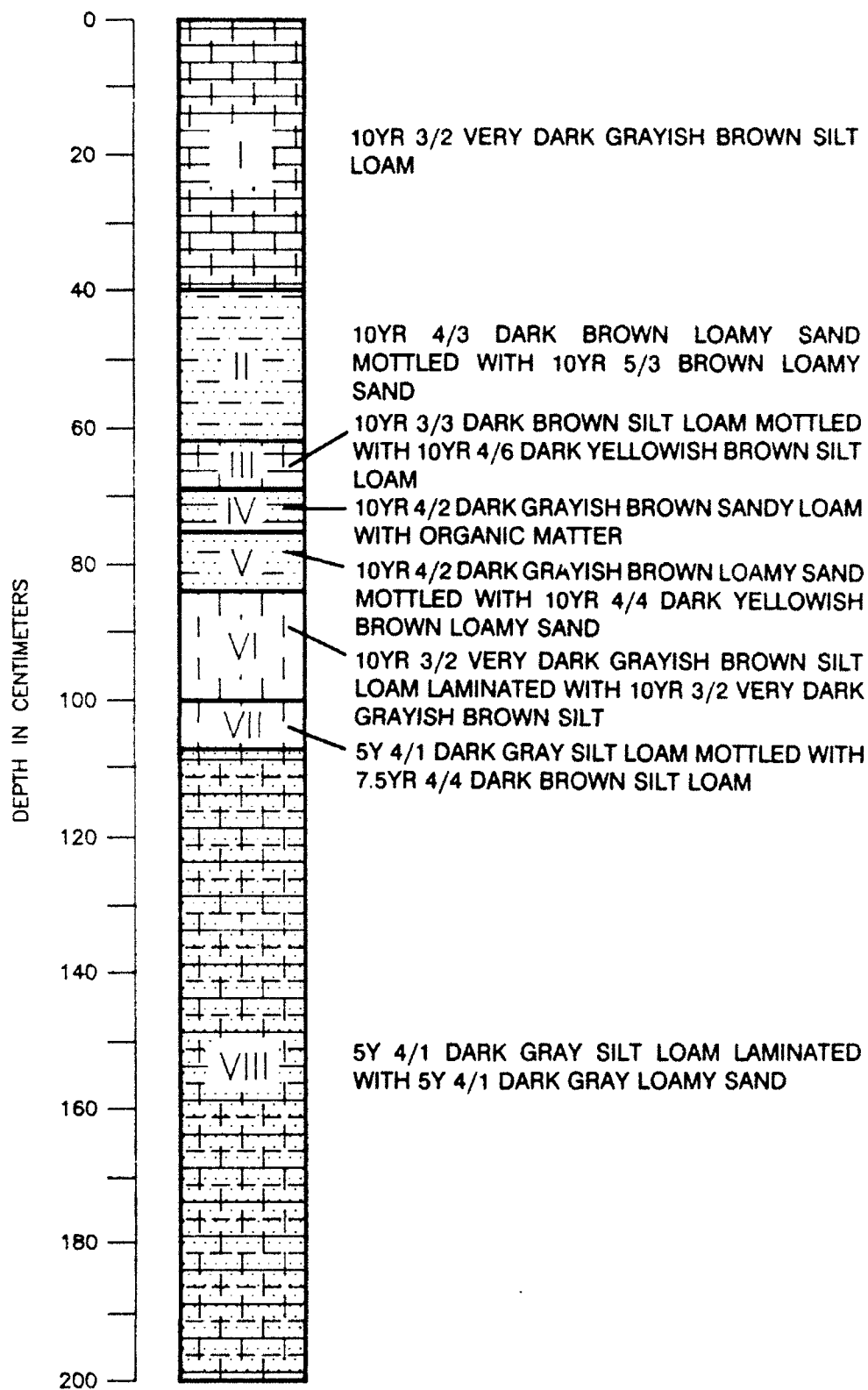


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APPENDIX II
SCOPE OF SERVICES

REVISED SCOPE OF SERVICES
CONTRACT DACW29-90-D-0018
DELIVERY ORDER 11

**CULTURAL RESOURCES SURVEY OF CARROLLTON BEND REVETMENT,
MISSISSIPPI RIVER M-105.7 TO 101.7-L**

1. Introduction. This delivery order calls for a cultural resource investigation of the east bank of the Mississippi River between Miles 105.7 and 101.7-L in Jefferson and Orleans Parishes, Louisiana (Enclosure 1, Hydrographic Survey 1983-1985, Chart 49). The project reach combines both constructed and unconstructed rights of way of Carrollton Bend Revetment (Enclosure 2, File No. 1-127, Charts 42 and 43). The work requires a literature search specific to the entire project reach (Miles 105.7 to 101.7-L), survey of approximately 0.7 miles within the reach, inventory and assessment of the significance of all sites and structures within survey areas, and preparation of comprehensive draft and final reports of investigation for the study. The contract period for this delivery order is 170 days.

2. Project Context. This delivery order is one element of a much larger study of impacts to cultural resources on the Mississippi River natural levee. The study has undergone three recognizable stages of data collection since its start in 1976. The specialized nature of the survey environment heavily influences data collection strategies. The batture is a microzone of the natural levee, artificially segregated by man-made levees. It absorbs exaggerated alluviation once distributed across the natural levee into the backswamp. It is constantly reshaped by bank caving, highwater scour, point bar accretion, crevasses, hurricanes, and point specific scour from vessel and barge docking, and public and private construction. The character of the batture also varies with the specific channel reach.

In response to this environment, the most effective archeological method used to date integrates three key tools: the direct historical method for forecasting the presence or absence of sites (employing historic maps and detailed courthouse record searches); application of historic maps and the principles of fluvial geomorphology to trace channel movement over time; and application of deep testing methods (augering and trench excavation) during the survey phase. The study has collected data on nineteenth century levee building, the sugar and rice industries, wharves and landings, boatyards, the distribution of both large and small landholders from the eighteenth century to the present, and data on impacts to sites. Project schedules control selection of survey reaches, which usually include multiple construction items and require consideration of future maintenance construction. The emphasis is upon comprehensive archeology in the reach rather than on clearing a specific project. Each new investigation not only adds to the growing data base of prehistoric and historic site information but also has the potential to refine future work through improved field methods and more specific background sources.

3. Description of the Study Area. The project reach is located on the east bank of the Mississippi River in Jefferson and Orleans Parishes, within urban New Orleans. The reach has sustained considerable reworking from industrial use, borrowing of fill, and construction. Approximately 2.3 miles of the reach have been revetted, and both channel movement and levee setbacks have destroyed former landings, wharves and city blocks along the cutbank of the river. The segment to be surveyed is an extension of earlier revetment construction (Table 1). The remainder of the reach requires documentary research and landuse reconstruction to assist

future impact assessment during maintenance construction to the levee, revetment, and the US Army Corps of Engineers reservation.

4. Description of the Construction Project. The Corps of Engineers proposes to construct an upstream extension to the concrete mattress revetment already in place at Carrollton Bend. The reach will be stabilized with a continuous articulated concrete mattress which is mechanically laid from the Low Water Reference Plane (LWRP) to a point several hundred feet into the river channel. To prepare for revetting, a 200 foot wide corridor adjacent to the bankline will be cleared of all vegetation and graded to a standard slope. Slope grading will remove the upper bankline within a 100 foot wide corridor adjacent to the edge of bank. The grading distance will vary in areas where caving has occurred. Any cultural resource within 200 horizontal feet of the bankline and within 10 vertical feet of the ground surface has a high potential for being destroyed. Surficial resources further than 200 feet landward of the bankline may be subject to disturbance from the movement of heavy equipment, but buried sites will remain intact.

5. Study Requirements. The work to be performed by the Contractor will be divided into three phases: Literature Search and Records Review; Intensive Survey and Site Assessment; and Data Analysis and Report Preparation.

a. Phase 1: Literature Search and Records Review. The Contractor shall commence, upon work item award, with a literature, map, and records review specific to the project reach (M-105.7 to 101.7-L). While some general information on a parish, state or national level may be required to explain cultural, economic and environmental trends active in the project reach, this report will focus on the history of human use of the entire project reach up to the present time. The goals of this review are five-fold and all five are of equal importance. First, this review will identify all existing, former and probable sites within the reach. Second, this review will collect and interpret site formation and destruction information (settlement, landuse, and land disturbance data) in a balanced manner for all periods of occupation including the present. In particular, consider what earlier revetment construction would have destroyed. Third, this review will be sufficiently complete and detailed to allow its application by any project in the vicinity to forecast all sites in the project reach, their history and destruction. Fourth, the results of this review will guide the selection of survey techniques and selection of locations requiring additional work to locate potentially buried sites. Fifth, this review will provide the background context by which the significance of all sites in the reach may be assessed. It will not be acceptable to conduct specific background research only after a site is found.

At a minimum, the literature and records review will establish the distribution of prehistoric and historic sites in the region and their proximity to the study area; identify previously recorded sites, standing structures, National Register of Historic Places properties and National Landmarks in or in close proximity to the project reach; provide national, regional and local context for assessing the historical, architectural and archeological significance of all sites and structures located in the project reach; and predict resources which can be expected to be located within the project reach. Economic and social trends, channel migration, major natural events, and all previous construction affecting land use patterns and the state of preservation of predicted resources will be analyzed and presented in specific terms of the project reach.

This phase shall include but not be limited to review of historic maps, the State Archeologist's site and standing structure files, the National Register of Historic Places, geological and geomorphological data, archeological reports, ethnohistoric records, historic archives, census

records, sugar and rice reports, and Land Office or courthouse records. Interpretation of landuse during any given period should not rely on maps alone, but should incorporate as many relevant sources as possible to prove or disprove an hypothesis. Where archival data can not be found, answers to research questions will be sought through interviews of knowledgeable persons.

Specific questions to answer:

1. Is there likelihood of finding sites if revetment segments already in place are repaired?
2. at what depth can structural remains be expected beneath the levee on the US Army Corps of Engineers reservation?
3. there are 19 pre-1945 shipwrecks recorded in the NOED shipwreck data base for miles 101 and 107.1-L; the Southport Steam Ship Wharf and two former ferry landings are located in the study easement (Walnut Street and Henry Clay); their locations correlate roughly with 15 data base entries; multiple wrecks were observed at the Walnut Street location in the 1960s; identify and map all other areas, such as wharves and landings, in the study easement where ships, barges and ferries can be expected to have been abandoned.
4. what is the history of residential use of the batture in the upstream segment of the reach?
5. identify and map areas where willow framed and asphalt mats still exist.

b. Phase 2: Intensive Survey and Site Assessment.

The contractor shall complete the survey and site assessment phase of this project no later than 19 June 1992.

The survey methodology must take overburden into account. An augering regime must be included to compensate for an unknown amount of alluviation, usually not more than 1-2 m in depth. Sample augering first is recommended to judge the amount of overburden in various locations of the survey reach. Shovel testing alone may not be adequate to inventory all sites.

The Technical Representative will be informed ahead of time of the testing schedule of all sites.

All holes will be backfilled.

An intensive survey is a comprehensive, systematic, and detailed physical examination of a project item for the purpose of locating and inventorying all cultural resources within the impact zone. The survey will be performed within the context of an explicit research design, formulated in recognition of all prior investigations in the study area and surrounding region, and will include subsurface testing and evaluation of identified resources against the National Register of Historic Places criteria of significance (36 CFR 60.4). The survey will provide adequate information to seek determinations of eligibility from the Keeper of the National Register, and will innumerate project effects on each resource located within the study area. The evaluation will be conducted utilizing current professional standards and guidelines including, but not limited to :

the National Park Service's draft standards entitled, "How to Apply the National Register Criteria for Evaluation", dated June 1, 1982;

the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in the Federal Register on September 29, 1983;

Louisiana's Comprehensive Archaeological Plan, dated October 1, 1983;

the Advisory Council on Historic Preservation's Section 106 Update/3 entitled, "Manual of Mitigation Measures (MOMM)", dated October 12, 1982.

The survey shall be an intensive pedestrian investigation augmented by systematic subsurface testing. Maximum transect width will not exceed 20 meters. The Contractor will include sample augering in the investigation methodology to 1) establish the probable depth of former living surfaces and 2) to locate buried sites or cultural strata indicated by literature and map research or to assess the size and significance of sites located in the bankline.

The areas surveyed and all sites located within project boundaries will be recorded (in ink) to scale on the appropriate 7.5 minute quadrangle and aerial mosaic project maps. The quadrangle maps will be used to illustrate site forms (see below). The project maps will be returned to the Technical Representative by 19 June 1992.

All sites will be sufficiently tested using shovel, auger or other excavation techniques to determine and record site size, depth of deposit, stratigraphy, cultural association, function, approximate date of occupation, condition, and significance. Site boundaries, test excavation units at sites (including test pits, shovel tests, auger intervals, backhoe trenches, etc.) and activity areas will be measured and mapped to scale. All scaled field maps will accurately reference grid locations in terms of levee stations or range markers in close proximity to the illustrated work area. The actual elevation (NGVD) of all subsurface sites, the top of bank, and top and bottom of cultural strata will be determined and mapped.

The Contractor will fill out and file state site forms with the Office of the Louisiana State Archeologist and cite the resulting state-assigned site numbers in all draft and final reports of this investigation. The Contractor will submit updated state site forms to the State Archeologist for all previously discovered sites within the project reach. These forms will correct previously filed information and summarize what is known of each resource as a result of this investigation. One unbound copy of each site or standing structure form will be submitted to the COR with the draft report.

All standing structures located in the survey area will be identified by function, dated and described using standard terminology of formal and/or vernacular architecture, as appropriate to each structure. Each standing structure will be recorded (using a simplified, standardized format selected by the Division of Archaeology and Historic Preservation), accompanied by a minimum of three, clear, black and white photographs showing front, back and side views of the structure. The Contractor will determine whether subsurface features are present. If present, the structure and all features shall be treated as a site, which shall be mapped and recorded on State of Louisiana site forms. The Contractor shall assess the significance of all standing structures using information collected during the survey and literature search phases of this work item.

c. Phase 3: Data Analyses and Report Preparation. All survey and testing data will be analyzed using currently acceptable scientific methods. The Contractor shall catalog all artifacts, samples, specimens, photographs, drawings, etc., utilizing the format currently employed by the Office of the Louisiana State Archeologist. The catalog system will include site and provenience designations.

All literature, map search, field and laboratory data will be integrated to produce a single, graphically illustrated, scientifically acceptable draft report discussing the project reach as a whole. Data integration requires use and application of all data collected to interpret resources, their setting, formation, destruction and significance. All sites located within the

reach will be related in text and tabular form to the appropriate construction item(s) for accurate future reference. Project impacts on all cultural resources located and/or tested by this study will be assessed. The Contractor shall provide justification of the rationale used and a detailed explanation of why each resource does or does not meet the National Register significance criteria (36 CFR 60.4). For each resource recommended as eligible to the National Register and assessed to be impacted by construction, the Contractor shall recommend specific mitigation alternatives. Inferential statements and conclusions will be supported by field, map or archival data. It will not be sufficient to make significance recommendations based solely upon assumed site condition, artifact content, or the presence or absence of features.

All data collected will be reported. The final report will fully describe how data were collected. The final report shall include maps of every site showing locations of shovel tests, test units, auger holes, trenches, artifact distributions, activity areas and features. Each map will tie the site shown into a permanent bench mark.

6. Reports.

a. Monthly Progress Reports. One copy of a brief and concise statement of progress shall be submitted each month throughout the duration of the delivery order. These reports, which may be in letter form, should summarize all work performed, information gained, and problems encountered during the preceding month. A concise statement and graphic presentation of the Contractor's assessment of the monthly and cumulative percentage of total work completed by task shall be included each month. The monthly report should also note difficulties, if any, in meeting the contract schedule. If sites are discussed, a map illustrating their locations and sizes should accompany the monthly report. **The preferred map base is the hydrographic series or a project aerial mosaic.**

b. Draft and Final Reports (Phases 1, 2, and 3). Five copies of a draft report integrating all phases of this investigation will be submitted to the COR for review and comment 60 days after the date of the order.

An estimate of the acreage surveyed for this project will be cited in the report introduction.

The draft and final reports shall include all data and documentation required by 36 CFR 60-63 to prepare requests for Determination of Eligibility to the National Register of Historic Places for those sites recommended by the Contractor as significant. For each significant cultural resource, the Contractor shall recommend appropriate mitigation procedures which are appropriate to the site or structure, its physical setting and condition.

These written reports shall follow the format set forth in MIL-STD-847A with the following exceptions: 1) separate, soft, durable, wrap-around covers will be used instead of self covers; 2) page size shall be 8-1/2 x 11 inches with a 1-1/2-inch binding margin and 1-inch margins on all other edges; 3) the editorial policy and style guide of the Society for American Archaeology (1983) will be applied to the report text, citations and References Cited. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual, dated January 1973.

The body of each report shall include the following: 1) Introduction to the study and study area; 2) environmental setting; 3) review and evaluation of previous archeological investigations; 4) distribution of prehistoric and historic settlement in the study area; 5) research design; 6) description of field and laboratory methodology, statement of project objectives, and analysis of the effectiveness of the methods; 7) data analyses and cultural material inventories; 8) data

interpretation; 9) integration of archeological and historical data; 10) conclusion; 11) data recovery recommendations for significant sites or structures; 12) references cited; and 13) appendices. The scope of service will be included as an appendix to all draft and final reports. The transcripts of all interviews will be provided in an appendix as will data and profiles from all borings and/or backhoe trench profiles collected during the field phase of this study.

The COR will provide all review comments to the Contractor within 45 days after receipt of the draft reports (105 days after the date of the order). Upon receipt of the review comments, the Contractor shall incorporate or resolve all comments with the approval of the COR and submit one copy of the final draft for final review within 135 days of the date of the order. Upon approval, the Contractor will submit one reproducible master copy and 40 bound copies of each report of investigation, and all separate appendices to the COR within 170 days after the date of the order.

In order to preclude vandalism, the draft and final reports shall not contain specific locations of archeological sites.

7. Disposal of Records and Artifacts. All records, photographs, artifacts, and other material data recovered under the terms of this delivery order shall be recorded and cataloged in a manner compatible with those systems utilized by the Louisiana SHPO and by State and Federal agencies which store archeological data. They shall be held and maintained by the Contractor until completion of the delivery order. Final disposition of the artifacts and records will be in accord with applicable Federal and State laws. Unless otherwise specified, artifacts will be returned to the landowner or permanently housed with the Louisiana Division of Archaeology and Historic Preservation or in a repository selected by the State Archeologist. The Principal Investigator shall inform the COR in writing when the transfer of data has been completed and shall forward to the COR a catalog of items entered into curation. The location of any notes, photographs or artifacts which are separated from the main collections will also be documented. Presently existing private archeological collections from the project area which are used in data analyses will remain in private ownership. The Contractor shall be responsible for delivery of the analyzed archeological materials to the individual landowners, the Louisiana SHPO's office, or any other repository designated by the Government following acceptance of the final report. All artifacts to be permanently curated will be cleaned, stabilized, labeled, cataloged on typed State curation forms, and placed in sturdy bags and boxes which are labeled with site, excavation unit or survey collection unit provenience.

TABLE 1

<u>REVETMENT ITEM</u>	<u>RIVER MILE</u>	<u>RANGES</u>	<u>HYDRO CHART</u>	<u>CNSTR FY</u>	<u>COMMENTS</u>
Carrollton Bend	105.7-105.2-L	U-75-U-65	49	?	excavate 6 auger tests along a transect, 100 ft landward of bankline (LWRP*)
	105.2-104.5-L	U-65-U-25	49	1992	survey corridor from LWRP to riverside toe of levee
	104.7-102.5-L	U-25-D-70	49	1884-1973	constructed; no survey required; assess in lit search
	102.5-101.5-L	D-70-D-95	49	?	no right-of-entry; assess in lit search

END

*LWRP refers to Low Water Reference Plane, illustrated on Mississippi River Hydrographic Survey Charts 1983-1985